

3/41
150
F.Y.H

Rare
\$125⁰⁰

INDUSTRY PUBLICATIONS.

INDUSTRY YEAR BOOK & DIRECTORY, That Great Marketing Book ..	Rs. 5
THEORY & PRACTICE OF COMMERCE & BUSINESS ORGANIZATION, A big book for the man with a future (3rd. Ed.) ..	Rs. 4
SUGAR IN INDIA. ..	Rs. 3-8
MERCANTILE & MAIL ORDER LETTERS & METHODS. Containing the ideas that pull new business and create new customers. 3rd. Ed. ..	Rs. 3
THE SPHERE OF TEA, with 25 plates ..	Rs. 3
SAFETY MATCHES & THEIR MANUFACTURE	Rs. 2-8
MONEY MAKING BY THE MAIL. Opens out a rich way to immense and ever-increasing possibility	Rs. 2
NEW CUSTOMERS: HOW TO CREATE— HOW TO HOLD. ..	Rs. 2
WIDE WORLD ENGLISH CORRESPONDENCE The General Letter Writing Book. 9th. Edition.	Re. 1-12
INDIAN PERFUMES, ESSENCES & HAIR OILS. 7th Ed. ..	Re. 1-8
MANUFACTURE OF INDIAN PICKLES, CHUTNEYS & MORABBAS, 3rd Enlarged Ed.	Re. 1-8
MANUFACTURE OF SYRUP (4th. Ed.) ..	Re. 1-8
MANUFACTURE OF INKS (3rd. Ed.) ..	Re. 1-8
INDIAN TOBACCO & ITS PREPARATIONS. 3rd. Enlarged Edition. ..	Re. 1-8
MANUFACTURE OF DISINFECTANTS AND ANTISEPTICS, with recipes of Insecticides, etc.	Re. 1-8
MANUFACTURE OF CATECHU ..	Re. 1-8
HOME INDUSTRIES. 2nd. Edition ..	Re. 1-8
MONEY IN HANDICRAFTS. ..	Re. 1-8
PHARMACEUTICAL PREPARATIONS ..	Re. 1-8
MANUFACTURE OF RUBBER GOODS ..	Re. 1-8
MANUFACTURE OF CONFECTIONERY ..	Re. 1-8
MILK AND MILK PRODUCTS ..	Re. 1-8
PREPARING CROPS FOR THE MARKET ..	Re. 1-8
INDEPENDENT CAREERS FOR THE YOUNG.	Re. 1-8
PROSPECTIVE INDUSTRIES, (2nd. Edition)	Re. 1-8
MANUFACTURE OF BATTERIES ..	Re. 1-8
MECHANICAL INDUSTRIES. ..	Re. 1-8
UTILISATION OF COMMON PRODUCTS ..	Re. 1-8
MANUFACTURE OF SOAP. (4th Edition)	Re. 1-8
VEGETABLE OIL INDUSTRY ..	Re. 1-8

(Continued to 3rd Cover).

INDUSTRY BOOK DEPT.,
KESHUB BHABAN, SHAMBАЗAR, CALCUTTA.

MANUFACTURE OF
**INDIAN PICKLES, CHUTNEYS
AND MORABBAS**

With Detailed Processes of Manufacturing
Preserved Fruits, Jams, Jellies,
and Marmalades.

By A Specialist
(Of 40 Years' Experience)

FOURTH EDITION.

(All Rights Reserved.)

Distributed by

CHEMICAL PUBLISHING COMPANY, Inc.

234 KING STREET

U. S. A.

BROOKLYN, N. Y.

CONTENTS.

PAGE.	PAGE.
CHAPTER I.	
INTRODUCTION.	
Causes of Putrefaction.....	2
Function of Preservatives.....	3
Distinctions among Pickles, Chutneys and Morabbas.....	4
Causes of Their Popularity.....	5
Possibilities.....	7
Jam, Jellies Etc.	8
CHAPTER II.	
THE INGREDIENTS.	
Fruits and Vegetables.....	9
Preserving Mediums	11
Mustard Oil and Vinegar.....	12
Lemons.....	12
Syrup Making.....	13
Salt.....	14
Sugar and Varieties of Sugared Preserves	15
Spices, etc.	16
Curing Agents.....	17
CHAPTER III.	
UTENSILS AND TOOLS.	
The Oven.....	18
Boiling Pans.....	19
Trays.....	20
Juice Extracting Press.....	20
Jars and Bottles.....	21
Scientific Instruments.....	21
Spoons, Stirrers, etc.	21
CHAPTER IV.	
PREPARATION OF PICKLES.	
Recipes of Pickles	23
Mango (Sweet)	23
Mango (Pungent)	24
Mango (Hindusthani).....	25
Mango (Sweet)	25
Mango (Hot)	26
Jack Fruit (2)	26, 27
Apple	28
Pineapple	28
Pear	29
Orange	29
Peach	30
Olive	30
Coconut-Shaped Plum.....	31
Coconut	31
Bainchi	32
Falsa	32
Apricot	33
Currants	33
Alubukhara	34
Date	34
Dry Dates	35
Grapes	35
Raisins	36
Cauliflower	36
Potato	37
Bean	37
Carrot	38
Turnip	39
Lemon (5)	39
Brinjal	43
Gourd	43
Chilli	44
Karela	44

PAGE.	PAGE.		
Elephant's Foot (Ol)	45	Mint	76
Elephant's Foot (Whole)	46	Sorrel	76
Hogplum	46	Mint and Coriander Leaf	77
Emblie Myrobalan	47	Bengal Chutney	77
Kamranga	47	Chutney Indian	78
Karamcha	48	Chutney Sauce	79
Tomato (Green)	48		
Cucumber	49		
Lime	49		
Mixed Pickles	50		
Tomatoes and Onions	51		
Pears (Sweet)	51		
Packing for Exporting....	51		
CHAPTER V.		CHAPTER VI.	
MAKING OF CHUTNEYS.		MAKING OF MORABBAS	
Green Mango	53	Preliminary Treatment	80
Green Mango (Sweet)	54	Principles of Cooking	81
Ripe Mango	55	Cooking Procedure	81
Mango Chutney (2)	55	Green Mango	82
Mango Chutney (Sweet)	57	Fazli Mango	83
Mango Cake (Amsatta)	58	Jack Fruit	84
Pineapple	58	Guava	84
Pear	59	Wood Apple	85
Blackberry	60	Ripe Papaw	86
Orange	61	Pineapple	86
Abjosh	61	Pear	87
Cauliflower	62	Apple	88
Green Papaw	63	Rose Apple	88
Ripe Tamarind	64	Blackberry	89
Beet	64	Orange	89
Carrot	65	Banana	90
Raisins	66	Sarda	90
Grape	67	Grape	91
Alubukhara	67	Water Melon	91
Apricot	68	Apricot	92
Date	69	Dry Dates	92
Falsa	70	Jarda Alu	93
Jarda Alu	71	Dates	93
Gooseberry	72	Currants	94
Bainchi	72	Peach	94
Emblie Myrobalan	74	Shaddock Peel	95
Ajowan	75	Coconut Follicle	96
Tomato Chutney	75	Kamranga	96
		Sweet Potato	97
		Pumpkin	98
		Beet	99
		Palwal	99
		Carrot	100
		Betelnut	100
		Ginger	101

PAGE.	PAGE.	
Myrobalan 102	Addition of Sugar 125	
Emblie Myrobalan 103	Cooking the Jelly 125	
Satamuli 104	Guava Jelly 128	
Sugarcane 104	Orange Jelly 128	
Karela 105	Apple Jelly 128	
CHAPTER VII.		
MISCELLANEOUS PREPARATIONS.		
Kasundi Making (3) 106	Grape Jelly 129	
Candied Jujube 108	Currant Jelly 130	
Amsatta or Mango Parchment 109	Blackberry Jelly 132	
Mango Pulp 111	Grape Jelly 132	
CHAPTER VIII.		
PRESERVED FRUITS.		
Methods of Preparation 112	Raspberry Jelly 132	
Method of Cooking 114	Strawberry Jelly 133	
Method of Cooling 115	Banana Jelly 133	
Packing 116	Packing 134	
Sealing 116	Processing 135	
Recipes 117	CHAPTER X.	
Pineapple Preserves 117	JAM MAKING.	
Mango Preserves 117	Jam boiling 137	
Water-melon Preserves 118	Blackberry Jam 140	
Star Apple & Rose Apple Preserves 118	Apple Jam 140	
Banana Preserves 119	Mango Jam 141	
Ginger Preserves 119	Red Currant Jam 142	
Tomato Preserves 120	Apricot or Plum Jam 142	
Strawberry Preserves 120	Currant Jam 143	
CHAPTER IX.		
JELLY MAKING.		
Extracting the Juice 122	Pineapple Jam 143	
Testing the Juice for Pectin 123	Strawberry Jam 143	
Testing the Juice for Acid 124	Beetroot Jam 144	
CHAPTER XI.		
MARMALADE MAKING.		
Process of Marmalade Making 145	CHAPTER XII.	
Apricot Marmalade 146	FRUIT JUICES.	
Red Currant Marmalade 146	Juice of Apple 150	
Orange Marmalade 147	Juice of Orange 150	
Apple Marmalade (2) 148	Juice of Lemon 150	
Lemon Marmalade 149	Juice of Pineapple 150	
Pineapple Marmalade 149	Juice of Grape 150	
Grape Marmalade 149	CHAPTER XIII.	
FRUIT JUICES.		

	PAGE.		PAGE.
CHAPTER XII.		CHAPTER XIII.	
PRESERVATION.		POSSIBILITIES AND	
MARKETING.			
Pickles	151	Indian and Foreign	
Chutneys	152	Demand	156
Morabbas	152	Hints on Marketing	157
Points of Success	153	Glossary	158

CHAPTER I.

INTRODUCTION.

THE extreme iniquities of the weather in a great tropical country like India are bound to exercise great influence on the vegetable growth of the country. At some periods of the year there is an abundance, almost a super-abundance, of fruits and vegetables while at other times the supply of these food stuffs is scarcely able to meet the demand of the country. If the surplus stock of fruits and vegetables of one season of plenty could be carried over to the season of scarcity, a more equitable distribution of the foodstuff would follow.

But in the ordinary course of nature this is impossible as these foodstuffs are liable to putrefaction shortly after maturity, and cannot be kept beyond a few days after ripening. This has led the Indian genius to devise an easy means to store up the abundance of one season to meet the deficiencies of another and the various pickles, *chutneys* and *morabbas* are the achievements of their enterprise. Chemical discovery and scientific apparatuses have brought about a revolution in the domain of canning food-stuff but none of the methods

are as simple in principles and easy in manipulating like those followed in the Indian homes from very old days.

CAUSES OF PUTREFACTION.

Articles of food have got a complicated structure of organic compounds, having the tendency to resolve themselves into simpler or inorganic compounds. It is a consequence of this complicated structure that organic compounds are unstable in their character and are liable to decomposition, or, in other words, resolve themselves into simpler compounds. For example, in an organic substance, the carbon and hydrogen have strong tendency to form carbonic acid; the hydrogen and oxygen to form water; the hydrogen and nitrogen to form ammonia; or the hydrogen and the sulphur to form sulphuretted hydrogen, etc. In popular language, these changes are expressed by such terms as decay and putrefaction.

It will be interesting here to mark the difference between 'decay,' and putrefaction. The term "decay" is limited to the decomposition of moist organic matter, freely exposed to the air. The oxygen gradually burns and destroys it without sensible elevation of temperature. The term 'putrefaction' is limited to changes which occur in and beneath the surface of water, the effect being a mere transposition of elements or metamorphosis of the organic

body. The conversion of sugar into alcohol and carbonic acid is a simple illustration of the term. The contact of oxygen is, however first necessary to the change, which, when once begun, continues without the aid of any other external substance, except perhaps water, or its elements. Every instance of putrefaction begins with decay; and if the decay or its causes, viz., the absorption of oxygen, be prevented, no putrefaction occurs. In short, if the access of oxygen be prevented there is no decay at all. If the access of water be prevented, there is no putrefaction. The exclusion of air and moisture therefore forms the basis of some of the best methods of preserving food.

FUNCTION OF PRESERVATIVES.

There are certain substances named preservatives which have got a property of preventing putrefaction of organic substances. Thus alcohol and common salt in certain proportions check putrefaction and the processes of fermentation by depriving the putrefactive body of water. Nitre, vinegar, spices, and sugar are also antiseptics. The antiseptic effect is sometimes produced by a very low temperature. This is due to the solidification of water and juices, which in their usual fluid state, allow themselves to move freely on one another and thus help to start putrefaction.

DISTINCTIONS AMONG PICKLES, CHUTNEYS AND MORABBAS.

Pickles, *chutneys* and *morabbas* are all preparations of preserved fruits, vegetables or herbs, their characteristic distinctions however being based on their modes of preparation.

PICKLING consists in the preservation of food with salt, mustard oil or vinegar, either with or without the addition of spices and sugar.

CHUTNEYS are preserved fruits and vegetables or extracts thereof with the aid of lemon juice or tamarind pulp.

MORABBAS are fruits, either whole or in pieces preserved by cooking in thin cane sugar syrup, until these are clear, tender and permeated with juice.

Among other minor points of differences, mention may be made of the following:—

(1) Pickles are generally acidic in taste although these are sometimes delightfully tempered with sweet and pungent ingredients in the shape of sugar and suitable spices. On the other hand *chutneys* possess a very slight acidic taste harmoniously blended with sweetness. The *morabbas* have got neither acid nor pungent taste but possess a delicate sweet taste characteristic of their own.

(2) Judged from the point of view of duration of treatment, pickles require one to

two months' time in the course of preparation while *chutneys* and *morabbas* are ready made, the *morabbas* however requiring a most careful cooking in syrup.

CAUSES OF THEIR POPULARITY.

It will not be out of place here to enquire about the causes of popularity of these preparations, e.g., pickles, *chutneys* and *morabbas*. The principal points of their usefulness may be outlined thus:—

(1) Fruits and vegetables are much liked as they are palatable, easily digestible and wholesome. The greater portion of those being perishable, their consumption in the green state is confined to a few months and in some cases to a few weeks of the year; and so without some practical means of preserving, a very large part must necessarily go to waste. The art of preserving food, as much as possible in its original state, is of great importance. Methods of pickling, etc., furnish this means and by their application the commonest articles of food can be enjoyed at all seasons, and even the delicious fruits of one country can be transferred to another. Many lakhs of rupees worth of choice fruits can be thus preserved with their natural flavour.

(2) The methods of pickling, preserving, etc., enable one to taste of one's favourite fruits and vegetables out of season.

(3) These preparations are very relishing. The pickles and *chutneys* serve as good sauces and render dishes palatable even when the appetite grows dull. The acid flavour contained in them enlivens the tongue, rendered inert by taking too much *ghee*-fed articles and sweets, and rekindles the desire for taking more. *Morabbas* on the other hand are dainty things and are treated as rare delicacies. These are used as tiffin and possess in some cases excellent medicinal properties and are prescribed by physicians.

(4) Apart from these facts, pickles, etc., derive their popularity to principles of economy. By preserving eatables when these are very abundant and cheap, provision is made against seasons when fruits and vegetables are not plentifully available and dear. Thus these preparations make a most useful outlet for the abundant products, and at the same time lead towards economy by the replacement of dear curries by cheap pickles, *chutneys* and *morabbas*.

The simplicity of the preparations of pickles, *chutneys* and *morabbas* has rendered them very popular in Indian homes, and the delicate appeal they make to the sensitive taste has endeared them to one and all. Perhaps nowhere in the world does the art of preparing these relishing articles of diet receive greater premium than in India, and there

is scarcely an Indian housewife who does not devote her leisure hours and energy to their preparation.

POSSIBILITIES.

The art of pickling in India dates back to days of antiquity and in the absence of facilities of communication and transport the pickles and others were made on a small scale for home use only. But the conditions have now undergone thorough changes. A net-work of railways and waterways has thrown open the country to the enterprising traders and in view of this the pickles, *chutneys* and *morabbas* can be marketed with profits to various parts of India specially in such places where these may be appreciated on account of their inaccessibility in their natural condition.

People of other nationalities as well of India have begun to appreciate the Indian preparations which are daily coming to greater popularity among them, and if pickles, etc., are made to cater to their taste and marketed in an up-to-date manner, a large demand for them is assured.

That there is enough scope for Indian pickles in the foreign markets has been proved in the last British Empire Exhibition where these were much appreciated by all who tasted them. A wide market is thus lying outside India as well and it requires only business tact

and effort to push their sale in the foreign markets.

It would thus appear that though Indian pickles, etc., are generally prepared by amateurs for home use, they can be prepared on a large scale for business purposes. In Bengal, Birbhum has already attained a reputation for being the centre of *morabba* making. In the United Provinces and Rajputana also these are prepared on a fairly large scale. And there is every hope that the indigenous method of canning fruits and vegetables can be extended to many other provinces of India, thus laying the foundation of a very lucrative industry.

JAMS, JELLIES, ETC.

Preserves, jams, jellies, etc., are now coming into fashion and people relish them much. Indian housewives now take pleasure in preparing them at home. The preparation of these delicacies is therefore dealt with in a separate chapter.

CHAPTER II.

THE INGREDIENTS.

SELECTION of ingredients is an essential factor in the preparation of pickles, *chutneys* and *morabbas*, and upon this the final success depends to a great extent. Those principally required for the purpose are:—

- (1) Fruits and Vegetables.
- (2) Preserving Mediums.
- (3) Spices, etc.
- (4) Ingredients for curing.

FRUITS AND VEGETABLES.

Almost all varieties of fruits and vegetables may be employed for making pickles, *chutneys* and *morabbas*.

Scrupulous care must be exercised over the selection of fruits and vegetables. Special stress should be laid on having these fresh from the fields, as this is a very necessary requirement if failure and disappointment are to be avoided. These should be as far as possible big-sized and of the finest lot of variety; otherwise the trouble taken in preserving them may be all in vain.

The fruits and vegetables as received for preserving, may be classified as under; green,

medium or over-ripe; large, medium or small; and sound and blemished. Over-ripe fruits should be rejected as these are liable to give rise to putrefying bacteria and vitiate the final products when pickled and bottled. If these are to be utilised, they may be used separately for *chutneys* or *morabbas* for immediate use.

The assortment just referred to, according to conditions of ripeness or size, is of particular interest to the manufacturer. In the preparation of pickles green fruits are requisitioned and hence the green ones should be reserved for that purpose. For similar reasons the medium ones (i.e., those which are fully developed and just ripening) should be set aside for *chutneys* and *morabbas*.

Grading the fruits and vegetables should meet the particular attention of those who manufacture pickles, etc. for profit. Uniformity of standard and quality are to be maintained to arouse the interest of the purchasers. Big-sized fruits and vegetables would yield a first class product while medium-sized ones and small ones produce second class and inferior quality of goods. By assortment, first class productions may be put in the market at profitable margins as these will no doubt fetch higher price than the lower quality articles.

Fruits and vegetables are both suitable for preserving. Almost all kinds are capable

of being made into pickles. But those most desired by virtue of their taste, keeping qualities and profit these yield are: Mango, jack-fruit, olive, cauliflower, bean, myrobalan, potato, hogplum, pineapple, dry date, beet, carrot, lemon, etc. etc.

For chutneys, the most common vegetables and fruits are: Mango, *amsatta*, pineapple, pear, orange, cauliflower, papaw green, tamarind, beet, carrot, grape, *alubukhara*, apricot, *falsa*, *bainchi*, carraway, mint, sorrel, etc., etc.

For the making of *morabbas* the following are most used; Mango, jack-fruit, guava, *bael*, papaw, pineapple, pear, berries, orange, banana, grape, *manacca*, pumpkin, emblic myrobalan, myrobalan, etc.

It will be noted that besides well-known fruits and vegetables, herbs and drugs also give creditable account of themselves in pickling in point of usefulness.

PRESERVING MEDIUMS.

The principal preserving mediums in use are:

- (1) Mustard Oil.
- (2) Vinegar.
- (3) Lemon juice, Tamarind juice, etc.
- (4) Syrups.
- (5) Molasses.
- (6) Salt.

Without any of the preserving mediums the pickles, *chutneys* and *morabbas* would not keep long and are liable to putrefaction shortly.

MUSTARD OIL AND VINEGAR.

The mustard oil, specially *ghanni* pressed, has excellent property of preserving the eatables steeped into it by eliminating putrefactive fermentation. This is the medium most employed in India in the preparation of pickles but now-a-days as a result of application of Western methods vinegar is coming into use for the same purpose. It may be mentioned here that the vinegar used in India, which generally goes by the name of *sirka* is different from the vinegar of Europe. Cane sugar vinegar and grape vinegar are also used. Moreover in India the flavour of vinegar and mustard oil does not equally suit all provinces and localities, and either may be employed in place of the other in accordance with the flavour finding favour in the province where the preparation is to be marketed.

LEMONS.

Lemons possess great preserving properties and the juice of lemons of both the *pati* and *kagsi* variety is made application of in preparing pickles and specially the *chutneys*. Juice of the limes of the *gora* variety also

possesses great preservative property. Tamarind pulp from unripe tamarinds is also used to a great extent in the preparation of *chutneys*.

SYRUP MAKING.

Syrup making should, however, engage the greatest attention. It is invariably required in the making of *morabbas* and upon the proper consistency of the syrup depends the excellence of the preparation. To prepare the syrup the following ingredients are necessary:

- (1) Sugar.
- (2) Water.

For convenience only refined sugar should be made use of. In the absence of refined sugar, a tedious process of clarification is to be undergone to make the syrup transparent and clear.

For the purpose of *morabba* making, syrup is rarely done by dissolving sugar in cold water simply but aid of heat is taken to dissolve sugar in water, stirring all the while until solution is effected.

Generally, to prepare syrup for *morabba* making, sugar is taken in the proportion of 3 seers for 2 seers of water. Gentle heat should be applied till the liquor acquires a syrupy consistency. Four different stages of the syrup are known and care should be taken

to be well-acquainted with the successive stages, which are named according to the density of syrup, thin, medium, thick and viscous. By thin syrup is meant syrup of such consistency that when a drop of it is cooled on the thumb nail, it gives a single thread when touched; when two threads are obtained, the syrup is known as of medium consistency; when three threads are obtained by further evaporation of water, the syrup is said to attain the third stage and is termed thick; when the syrup is further thickened it is called viscous. A good syrup should be smooth and should neither ferment nor crystallise readily.

When impure sugar is used, a scum forms on the surface readily when boiling takes place. This is to be removed from time to time. But for better results, a mixture of fresh milk and water is to be stirred in during boiling and the scum removed. The operation is repeated till no more scum is perceived and the syrup becomes perfectly clear.

SALT.

Salt is another strong preservative. Its action is to abstract the water from the body of the vegetables, and being dissolved therein the salt enters the pores of the substance. In dry salting the surface is rubbed all over with salt; in wet-salting, or pickling as it is called, the article is kept immersed in a solution

(sometimes saturated) of common salt in clear water.

Salt used in pickling must be clean and free from the impurities usually attached to it. Rock salt may also be used.

SUGAR AND VARIETIES OF SUGARED PRESERVES.

Sugar, like salt, takes away the water from the vegetables and thus prevents putrefaction. Sugar also preserves many of the fruits whose delicate juice would be dissipated in the process of drying. Molasses are also used for the same purpose.

When sugar is the preserving medium, foodstuffs are variously named according to the mode of preparation. Fruits, flowers, herbs, roots and juices, boiled with sugar or syrup and employed in pharmacy as well as for sweet-meats, are called *morabbas* or confec-tions. Liquid *morabbas* consist of fruits, either whole or in pieces, preserved by im-mersion in fluid transparent syrup: apricots, green citrons and mangoes, etc. are treated in this way. Dry *morabbas* are prepared by boiling in syrup those parts of vegetables adapted to this method such as citron and orange peel, pumpkin etc.; they are then taken out and dried in an oven.

Marmalades, jams and pastes are soft compounds made of the pulp of fruits or other

vegetable substances, beaten up with sugar or honey; orange, apricots, pears, etc. etc., are treated in this way. Jellies are the juices of fruits,—currants, goose-berries, apples, etc.—boiled with sugar to such a consistency as to form a trembling jelly on cooling. Conerves are dry confects made by beating up flowers, fruits, etc., with sugar not dissolved. Candies are fruits candied over with sugar after having been boiled in the syrup.

SPICES, ETC.

For flavouring, spices are much used in the preparation of pickles and *chutneys*, although they are scarcely used while making *morabbas*. The spices are sometimes added whole without being crushed but generally in making *chutneys* they are well pounded in a mortar with a pestle before their final addition. Some of these are baked on a plate on fire before being powdered for enriching the flavour. The powder may be sifted through a fine cloth but it is the usual custom to have it simply pounded finely so that no grain or grit is to be perceived. Some of the spices such as turmeric, mustard rye, etc. are brayed to make a paste. Ginger and dry ginger form part of the spices and these are added generally in a finely chopped state, or after being bruised by a muller on a stone. The spices most employed in the preparations are:

- (1) Chilli
- (2) Black Pepper
- (3) Fenugreek
- (4) Cumin Seed, Black
- (5) Cumin Seed, White
- (6) Aniseed
- (7) Carraway
- (8) Parsley
- (9) Mustard Rye
- (10) Turmeric
- (11) Ginger
- (12) Dry Ginger

Although particular spices to be incorporated in connection with the preparation of pickles, etc. are prescribed in the recipes, they may be changed according to taste and requirements. Some prefer hot chillies, garlic and onion, etc. and these may be suitably added to suit local conditions.

CURING AGENTS.

Salt, whey, borax, alum, etc. are some of the reagents required for curing. In pickling salt is the prime requisite. It draws out water from within the food and reduces the water content of the fruit thus rendering it less liable to perishableness. In cases of certain eatables and drugs, these are steeped in lime water, whey, solutions of borax, alum, etc. for several hours and this removes the undesirable elements in them and befits them for subsequent treatment and human consumption.

CHAPTER III.

UTENSILS AND TOOLS.

THE following are the tools and utensils required for pickling, etc.

- (1) Trays for sunning
- (2) Mortar and pestle
- (3) Knife
- (4) Stone and Muller
- (5) Wooden spoons and ladles
- (6) Boiling pans
- (7) Juice extracting presses
- (8) Stove for sterilization purposes
- (9) Oven
- (10) Scientific instruments, *e.g.*, thermometers and saccharometers.
- (11) Stirrers, spoons, etc.

Some of these items are too common to require any explanation. Only the important points in connection with the others are therefore pointed out.

THE OVEN.

The construction of the oven for pickling or canning purposes should be made with care. For, any defect in construction leads not only to uneven heating but also to numerous troubles during the boiling operations. These

ovens do not differ much from the domestic hearths but their size should be adopted to the total amount of vegetables to be treated. Ovens fed with coal may be used for ordinary purposes of boiling but when making syrups and *morabbas*, where slow heating is essential to success, ovens having arrangements for the utilisation of wood as fuel should be made. The great advantage of such ovens is that heating can be continued slowly or vigorously at will by withdrawing fuel or supplying more to it as required. The ashes inside the oven should be swept out and the sides scrupulously cleaned before it is fired. Another important point in this connection is that the flame in the oven should play uniformly on all sides of the pan placed over it.

BOILING PANS.

The boiling pans for cooking pickles, *chutneys* or *morabbas* should be earthen or enamelled. No metallic vessel can be made use of as this is likely to have an injurious effect on the products and discolour them, specially when treated with lemon juice, tamarind pulp, etc. Metallic compounds formed by their actions are also injurious to health. Aluminium vessels also are not to be employed. The vessels should be scoured well and rubbed with a clean rag before use. Unclean pans should never be used.

TRAYS.

Trays are required for sunning the products when necessary and for cooling purposes. As in the case of boiling pans the trays must not be metallic; these should be made of either wood, stone, earth or porcelain. The vessels for keeping fruit juice should not also be of metals.

JUICE EXTRACTING PRESS.

Ordinarily juice of fruits is squeezed out of a strong piece of cloth with pressure by hand but on a commercial scale the juice is extracted with a simple mechanical device, called a press. This consists of two pieces of wood connected by a hinge at one extremity. The upper piece is provided with a handle for exerting pressure, while the lower block contains a perforated hollow for placing the fruits or vegetables. When the upper block is pressed, juice comes out and after passage through the holes is collected in a receiver. The device may be modified according to special requirements.

Machines are also available in the market for extracting fruit juices. A common variety is that provided with a knived crown which is capable of rotation by a handle at the side. The fruit is pressed against the crown, the juice being collected in a cup surrounding the room.

JARS AND BOTTLES.

For final packing only porcelain jars and glass bottles should be used. For home use pickles are packed in porcelain jars but for marketing these should be placed in wide mouthed glass bottles with screw caps or wire clamp arrangements.

SCIENTIFIC INSTRUMENTS.

Thermometers are required for noting the temperature at the time of processing. Beginners may take help of automatic measures of consistencies of syrups, called saccharometers, or the ordinary hydrometers. Only the experienced hands can do without the help of these instruments.

SPOONS, STIRRERS, ETC.

Stirrers, spoons, etc., should be made of wood.

CHAPTER IV.

PREPARATION OF PICKLES.

GREEN or slightly unripe fruits and vegetables are generally used for pickling. These may be employed fresh but sometimes they are boiled in water to render them tender before application of the spices. The fruits are sometimes pickled whole and sometimes in pieces. These are sometimes treated in lime water or whey for purpose of growth of acidic fermentation, which retards future decomposition and decay. It is believed that the pickles are improved in texture by this treatment. The pieces are then besmeared with salt which as remarked before draws out water from within and are allowed to remain exposed to bright sunshine, when the water dries up. The chemical process involved in the treatment is hard to explain but it is believed that the salt prevents injurious bacteria from active growth and as a result of complicated chemical changes, sugar of the fruits and vegetables is converted into lactic acid, which turns the grass greenness of the fruits such as mangoes to an olive green, which colour is recognised to be the correct tint of pickles. When the salt is acidic, all air should be excluded as

otherwise a formation of yeast scum spoils the pickles. At this stage, that is when the salt is acidic, the salted eatables are covered with vinegar or mustard oil. It is said that the great secret of pickle making lies in bringing about acid fermentation quickly and, when this is done, in preserving the acidity by covering tightly.

The pickle is, however, to be put in the sun for several days before it is ready for use. Even then the containing jars should be sunned from time to time to render the formation of moulds impossible, the fermentative bacteria being destroyed by the sun.

RECIPES OF PICKLES.

A number of well-tried recipes follow. The principle followed here will help in making others of a similar type.

MANGO.

(Sweet).

Mango (green)	20	
Mustard Rye	1	ch.
Black Pepper	2	tollah.
Fenugreek	2	tollah.
Cumin Seed, White	2	tollah.
Black	1	tollah.
Turmeric	1	tollah.
Salt	3	tollah.
Sugar	1	seer.
Vinegar or Mustard Oil	8	ch.

Procedure—Cut the mangoes lengthwise into 2 or 4 slices. Then besmear them with salt and mustard rye brayed into paste. Keep for a couple of days when watery juice will come out of them. Now take off the slices, clean them and soak for 24 hours in a thick syrup made with the prescribed amount of sugar. Finally put in a jar and pour over it mustard oil or vinegar made from cane sugar. Use after a few days.

MANGO.

(*Pungent.*)

Mango (Green)	20
Fenugreek	1 ch.
Cumin Seed, Black	$\frac{1}{2}$ ch.
,, White	$\frac{1}{2}$ ch.
Salt	4 ch.
Mustard Oil	2 $\frac{1}{2}$ seers.

Procedure—Carefully cut open the mangoes, without paring the skin, into two halves from the top so that the two parts are not quite separated but are slightly attached to one another. The opening must be just sufficient to enable removal of the yet tender stones which are scraped and thrown off. Then put the spices mixed together into the opening and sew up the cut top with thread. Now besmear them with salt and place in the sun. Next day arrange the mangoes thus stuffed in a glass or porcelain jar, pour mus-

tard oil over them and cover. Then expose to bright sunshine for about a fortnight successively, when the pickle will be ready for use. Put the jar in the sun at least once a week, to prevent putrefaction.

MANGO.

(*Hindusthani*).

Mango (Green)	1 seer.
Cumin Seed	1½ tollah.
Salt	4 "
Mustard Oil	q.s.

Procedure—Pare and stone the mangoes. Now slice and bruise them well. Put the mass in a thick cloth and squeeze to press out the acidic juice. Now incorporate the brayed cumin seed, brayed ginger and salt into it and make into balls. Cover these balls by leaves and put in the sun to dry. When dry remove the leaves and immerse the balls into oil. This pickle is much liked in Northern India and keeps long.

MANGO.

(*Sweet*).

Mango (Green)	20
Mustard Rye	2 ch.
Salt	q.s.
Sugar or Molasses	1 seer.
Mustard Oil or Vinegar	½ seer.

Procedure—Cut the mangoes into two and remove the core. Then treat them with the rye mustard brayed to a paste and salt. Keep aside for 2 days. Then immerse them in a thick syrup for 24 hours. Now take up the pieces of mangoes from the syrup with the adhering juice and put in vinegar or mustard oil.

MANGO.

(Hot).

Mango (Green)	20
Mustard Rye	2 ch.
Chilli	q.s.
Turmeric	1 tollah.
Salt	4 ch.

Procedure—Peel and core green mangoes and cut into slices. Now bruise them well and mix with salt. Keep aside for one day in a stone platter. Water will come out from the mangoes. Now drain off the water. Next add brayed mustard seed, chilli, turmeric and salt in proportions given or to suit taste. The preparation keeps for two to three months.

JACK FRUIT.

Jack Fruit (Green)	1 seer.
Rock Salt	1 ch.
Mustard Seed	1 ch.
Chilli	1 ch.
Aniseed	$\frac{1}{2}$ ch.

Cumin Seed	1 ch.
Turmeric	1 tollah.
Mustard Oil	q.s.

Procedure:—Take a green jack fruit. Remove the skin and reject the unnecessary parts. Then cut the fruit into slices and steep in cold water for 10 minutes. Now take them out and have them boiled in water till soft. Allow to drip and put in the sun for about 2 hours. Then mix salt and set aside for 2 or 3 days. When no more water comes out, mix the spices in powder form and put in the sun for 2 days. Then put in a jar and cover up with oil. Put in the sun for 10 to 12 days.

JACK FRUIT.

(Another Method).

Jack Fruit (Green)	2	seers.
Lemon	25	to 30
Salt	4	ch.
Mustard Oil	2½	seers.

Procedure:—Take an unripe jack fruit, peel off the thorny skin, cut into suitable slices and throw off the tender seeds. Boil the pieces in water in an earthen vessel, until they are soft but not over-cooked. Drain off the water and when the pieces are dry, besmear them with salt and juice squeezed out of the lemons. After 48 hours place them in a

porcelain jar and pour mustard oil. Place the jar in the sun in the day and in the dew in the night for a fortnight. Finally bottle and cork air-tight.

APPLE.

Apple	20
Tamarind (Unripe)	1 seer.
Salt	4 ch.
Mustard Oil	2 seers.

Procedure—The apples are first of all pared and then cored, each of the fruits being cut into four pieces. These pieces are boiled in water and then put in an extract of unripe tamarind, made by boiling in water and by straining. To this is then added salt and allowed to dry in the sun for 2 days. The pieces are then put in a wide-mouthed jar containing good mustard oil. The jar should be kept out in the sun for a month.

PINEAPPLE.

Pineapple	1	seer.
Lemon	5	
Salt	2	ch.
Sugar	4	ch.
Vinegar	1	seer.

Procedure—The pineapples are carefully peeled and the eyes are all taken out. These are then put in the juice extracted from lemon,

and then salt and sugar are added to it. The whole is then allowed to remain exposed to sunshine for 3 days and is put in a wide-mouthed vessel. Finally cover up with approximately one seer of the best vinegar. The jar should be sunned for a month before the pickle is ready for use.

The lemon juice may be omitted from the recipe, if necessary.

PEAR.

Pear	25
Lemon	100
Salt	2 ch.

Procedure :—Peel the pears and cut each into 4 pieces length-wise. Soak them for a day in hot brine prepared with 2 chhataks of salt and required amount of hot water. Then remove them from the brine and put in a glass or procelain jar. Next pour the juice expressed out of 100 lemons. Place in the sun for 48 hours and then bottle air-tight.

ORANGE.

Orange	25
Curd	8 ch.
Lemon	100
Salt	4 ch.

Procedure :—The oranges are first of all scraped with a piece of *jhama* (over-burnt brick) only slightly. Care should be exercised while scraping, for if done in excess this

is responsible for bitterness of taste. The oranges are then dipped in a solution of sour curd and salt taken out after a few minutes and put in the sun in a stone tray. After three days bottle up in a wide-mouthed vessel and pour over them the juice of 100 lemons. Keep out in the sun and dew alike for a month before use.

PEACH.

Peach	100
Lemon	20
Salt	2 ch.
Ginger	2 ch.
Vinegar	1 seer.

Procedure:—Wash the peaches thoroughly in water and wipe in flannel. Then extract juice from the lemons and keep this along with salt in a wide-mouthed bottle. Finally immerse into this the peaches and add 2 chhataks of ginger slenderly chopped. Place in the sun for a week and finally pour vinegar and cork air-tight.

OLIVE.

Olive	100
Salt	4 ch.
Chilli (Green)	4 ch.
Gram	2 ch.
Mustard Oil	5 seers.

Procedure:—Select big-sized olives and wash them clean. Take water in a pan and

place over an oven. When boiling, throw in the olives and continue heating until these are soft. Drain off the water, place them on a stone or enamelled plate and strew over the salt. After 24 hours take them out from salt, put in a porcelain jar and cover up with mustard oil. Now introduce the green chillies after breaking off their stalks and add the gram previously soaked in water. Close the mouth of the jar air-tight and place in the sun and dew for a fortnight. This pickle keeps long.

COCONUT-SHAPED PLUM.

Coconut-shaped Plum	100
Salt	$\frac{1}{2}$ seer.

Procedure :—Take big-sized plums and peel off the skin. Salt them and put in the sun for 1 day. Then put them in saline water and pack in a bottle.

COCONUT.

Kernel of Ripe Coconut	1	seer.
Cardamom Minor	1	tollah.
Lemon Juice	1	seer.
Ginger Peel (Pounded)	1	ch.

Procedure :—The kernel of the coconut is first chopped into thin slices. The other ingredients are incorporated into this. Put in the sun and dew for 10 days. Finally pack.

BAINCHI.

Bainchi	1	seer.
Salt	2	ch.
Lemon (Pati)	5	
Chilli (Green)	25	
Lime (Gora)	10	

Procedure :—Select dark-coloured *bainchis*, salt them and put in the sun for 2 days. Then put in a wide-mouthed vessel, add the *pati* lemons, finely sliced and the green chillies cut into twos lengthwise. Now extract the juice of the ripe *gora* limes and pour it over the *bainchis*. Put the vessel in the sun for one month when the pickle will be ready for use.

FALSA.

Falsa	1	seer.
Salt	2	ch.
Sugar	8	ch.
Lemon Juice	1	seer.

Procedure :—Besmear *falsas* with salt and put in the sun for 2 days on a stone plate. Then rub sugar over their surfaces and put in the sun for another day. Now put them in a wide-mouthed bottle and pour about 1 seer of juice of *pati* lemons to cover them up. Put in the sun for 1 month.

Lemon juice may be omitted from the recipe without deterioration of the stuff.

APRICOT.

Apricot	1	seer.
Curd	4	ch.
Salt	2	ch.
Cumin Seed, White	1	tollah.
Cumin Seed, Black	1	tollah.
Fenugreek	1	tollah.
Chilli	1	ch.
Mustard Seed	1	ch.
Lime Juice (Gora)	8	ch.

Procedure :—Apricots should first of all be cleaned and washed and then besmeared on the surface with salt and curd. Thus treated the apricots are put in the sun for some days. Then fry the cumin seed, both black and white and fenugreek and have them well-powdered. Grind also finely the chillies and mustard seed. These powders are then intimately mixed with the apricots, which are again put in the sun for 2 days. Then put in a wide-mouthed vessel and pour over it about 8 chhataks of juice of ripe lime of the *gora* variety. Cork the mouth tightly and expose to the sun and dew alike for 15 days successively. This pickle keeps for 2 years.

CURRANTS.

Currants	1	seer.
Salt	4	ch.
Lime (Gora)	20	

Procedure :—Wash the currants well in water, dry, and besmear them with salt. Put in the sun for one day and then preserve in the juice of ripe *gora* lime. The whole is put in a wide-mouthed jar which is to be put in the sun for a month.

ALUBUKHARA.

Alubukhara	1	seer.
Curd	2	ch.
Salt	2	ch.
Lemon	50	

Procedure :—Wash the *alubukharas* cleanly and besmear them with the prescribed amount of curd and salt and place on a stone plate in the sun for 3 days. Then put them in a wide-mouthed vessel and cover over with juice expressed from 50 lemons and put in the sun and the dew for a month when the pickle will be ready for use.

DATE.

Date (in pots)	1	seer.
Salt	2	ch.
Sugar	4	ch.
Lemon	25	
Vinegar	1	seer.

Procedure :—Express the juice of the pati lemons and treat the dates with salt, sugar and the lemon juice. Put in the sun for 2 days. Then place the dates in a wide-mouthed bottle and cover up with vinegar.

DRY DATES.

Dry Dates	1	seer.
Ginger	4	ch.
Salt	2	ch.
Vinegar	4	seers.

Procedure :—Clean the ginger and cut into slender pieces. Cut the dry dates longitudinally into four pieces, rejecting the stones. Now put the vinegar in a pan over a slow fire and when boiling throw in the dry dates and the other ingredients. Continue heating and remove when 1 seer of vinegar is left.

GRAPES.

Grapes (Big-sized)	1	seer.
Lime (Gora)	15	
Salt	2	ch.
Sugar	8	ch.
Black Pepper	1	ch.
Cumin Seed, White	$\frac{1}{2}$	ch.
Cumin Seed, Black	$\frac{1}{2}$	ch.
Fenugreek	$\frac{1}{2}$	ch.

Procedure :—Cumin seed both black and white are to be fried and then pounded finely. Black pepper and fenugreek are also to be finely ground. To prepare the pickle, first of all grapes are treated with salt and sugar and kept out in the sun for a day. Then incorporate the spices in powdery condition. Now add to this the juice expressed out of *gora*

lime and bottle up in wide-mouthed vessels. Keep out in the sun for a month before use.

RAISINS.

Raisins	1	seer.
Black Pepper	1	ch.
Cumin Seed, Black	$\frac{1}{2}$	ch.
White	$\frac{1}{2}$	ch.
Rock Salt	3	ch.
Cardamom Major	$\frac{1}{2}$	ch.
Ginger	4	ch.
Grape Vinegar	1	seer.

Procedure :—First put the vinegar in a pan on fire and when boiling briskly add the salt, bruised ginger and cleaned raisins. Continue boiling and when the mass thickens, incorporate the other ingredients of which cardamom major should be powdered and others left whole. Continue heating gently for some time and remove. It is ready for use.

CAULIFLOWER.

Cauliflower	1	seer.
Tamarind (Unripe)	1	seer.
Salt	4	ch.
Tamarind Leaf	2	ch.
Mustard Oil	$2\frac{1}{2}$	seers.

Procedure :—First of all bring to a boil some quantity of water in an earthenware vessel and put the tamarind leaves into it and continue boiling. After a time put into it the trimmed cauliflowers devoid of leaves and un-

necessary stalks and stems. The cauliflowers should not be overdone but should remain stiff. These are then picked up separately and water having been carefully shaken off are put on a stone plate. Now prepare an extract by mashing unripe tamarind by hand and straining. Finally pour this over the cauliflowers.

POTATO.

Potato	50
Lemon	100
Chilli (Green)	50
Salt	1 ch.
Vinegar	1 seer.

Procedure :—Peel the potatoes and cut them into halves. Boil them in water until tender. Next press the juice out of the lemons and put the potatoes into it and besmear these with salt. Place in the sun for a day. Then drop the potatoes in a jar containing 1 seer of vinegar, and also pour the lemon juice into it. Finally add 50 green chillies and cork air-tight. Place in the sun occasionally.

BEAN.

Bean	1	seer.
Tamarind (Unripe)	1	seer.
Salt	4	ch.
Cow Peas	4	ch.
Chilli	4	ch.
Mustard Oil	2½	seers.

Procedure :—Select green and well-developed beans and have them slightly boiled in water. Unripe tamarind is then boiled in water in another vessel and an extract is made out by mashing and finally straining through cloth. To the extract then add the half-boiled beans, salt, peas and chillies in the proportions stated and mix intimately. Then put out in the sun till the whole dries up. Then introduce the beans in a wide-mouthed vessel and pour in pure mustard oil over them. The whole is to be exposed to the sun for a month before being ready for use.

CARROT.

Carrot	5	seers.
Mustard Rye	8	ch.
Salt	6	tollahs.

Procedure :—First clean the carrots, peel them and cut into pieces. Also make ready a paste by braying the mustard rye. To prepare the pickle, first boil the pieces of carrot in water until they are tender. Drain off the water, and besmear the pieces with salt and brayed mustard rye. Put in an earthen vessel and cover up with a dish. Place the vessel in the sun for a day and then pour about half a seer of hot water over it. Cover up the mouth of the jar and place in the sun for 5 days.

This process is also applicable in the case of gourds, turnips, etc.

TURNIP.

Turnip	25
Tamarind	1 seer.
Salt	2 ch.
Vinegar	1 seer.

Procedure—Clean the turnips and cut each of them into four pieces. Boil them in water until tender. Care should be taken that the turnips are not over-done or under-boiled. Next boil the tamarinds in water and extract the pulp by mashing. Besmear the turnip pieces with this sour pulp and then mix 2 chhataks of salt with them. Put in a stoppered wide-mouthed bottle and pour vinegar. Place in the sun for a week and cork airtight.

LEMON.

Lemon	200
Chilli (Green)	50

Procedure—Extract juice out of 100 of lemons of the *pati* variety by pressing or squeezing and hold the juice in a porcelain or glass container. Then cut the remaining 100 lemons into halves crosswise. Immerse the lemon halves into the juice and add to this 50 green chillies with the stem left out. Place the jar in the sun during the day and in the dew during the night for a fortnight when the pickle will be ready for use.

II.

Lemon	100
Salt	10 ch.
Lemon Juice	q.s.

Procedure—Take big-sized lemons of the *pati* or the *kagzi* variety. Scrape off the peel with a piece of burnt brick. Besmear with salt and put in the sun and dew for 5 days. Also add daily a quantity of lemon juice to the salted lemons. Finally put the lemons in lemon juice and pack.

III.

Lemon	100
Salt	10 ch.
Mustard Oil	q.s.

Procedure—The peel of the lemons are carefully scraped with a piece of burnt brick. Besmear them with salt and keep them in the open air for 5 days. When they are found to be shrinking, the lemons are put in the bottle and mustard oil is poured so that all the lemons are under oil.

IV.

Lemon	100
Mustard Oil	2½ seers.
Lemon Juice	6 ch.
Curd	4 seers.
Salt	q.s.

Procedure—The lemons are to be first scraped with a piece of burnt brick. Besmear

them with a small quantity of salt and lemon juice and put in the sun to dry. Repeat the process. In the meanwhile the curd is battened down with salt. When the juice on the lemons is dried up, the lemons are steeped in the curd. After closing the mouth, put the vessel in the sun for 20 days. The lemons should be turned up every day. When the curd is dried up, the lemons are taken out and washed well in water. Put them in the sun for $1\frac{1}{2}$ to 2 hours. Various powdered and fried spices such as coriander, fenugreek, cumin seed black, aniseed and powdered chilli and turmeric may be made to enter into the body of the lemons through an incision. The hole is then bound by a thread and the lemons are finally immersed in mustard oil, when it will be ready for use.

Sometimes the lemons are simply left with the coating of any oil. In such cases the lemons are picked from the curd and allowed to dry in the sun for 4 or 5 days. These are then anointed with oil and kept in a vessel in which oil was kept.

Sometimes the lemons after being picked up from the curd are exposed to the sun for 7 or 8 days and when quite dry they are kept in a vessel on the bottom of which salt has been sprayed. This pickle removes absence of appetite and may be even prescribed to the patients.

It may be noted that if the pickle is to be kept long, the quantity of curd must be lowered.

V.

Lemons	12	
Salt	1	lb.
Mustard seed, tied in muslin	4	oz.
Peeled garlic	2	"
Grated nutmeg	$\frac{1}{2}$	"
Ground mace	$\frac{1}{2}$	"
Ground cloves	$\frac{1}{4}$	"
Vinegar	1	qt.

Procedure :—Remove the rinds of the lemons in thin slices, and put them aside, to be afterwards dried and used for flavouring purposes. Leave all the pith on the lemons, cut them lengthwise and across, thus forming four quarters, sprinkle over them the salt, and place them singly on a large dish. Let the dish remain near the fire until all the juice of the lemons has dried into the pith, then put them into a large jar. Add the rest of the ingredients, cover closely, and let it stand near the fire, but not on the stove, for 5 days. At the end of the time cover the lid with parchment paper or bladder, and put the jar in a cool, dry place. At the end of 3 months strain off the vinegar through a hair sieve and press the fruit well to extract as much moisture as possible. Strain 2 to 3 times, and when quite clear bottle for use.

BRINJAL.

Brinjal	2	seers.
Ginger Bruised	3	tollahs.
Cumin Seed, Black	1½	tollahs.
Mango Bruised	4	ch.
Salt	2	ch.
Mustard Oil		q.s.

Procedure:—First remove the stalk of the brinjal and make an incision with a knife. Now incorporate the ingredients except the oil and enter a quantity of it through the incision. Finally sew up the mouth of the orifice and immerse in mustard oil. Put in the sun to mature.

Many vegetables such as carrot, turnip, etc., may be pickled in this way. Put the containers in the sun occasionally.

GOURD.

Gourd (Unshelled)	2½	seers.
Mustard Rye	4	ch.
Salt		q.s.

Procedure:—The peel of the gourd is first of all removed. It is then cut into pieces. These are then boiled in water. When well boiled, the water is drained off. The pieces are then besmeared with mustard paste. Put in an earthen vessel and cover up the mouth. Put the vessel in the sun for one day. Then remove the cover of the vessel

and pour into it a quantity of hot water. Finally close the mouth of the vessel and put in the sun for 5 days before use.

CHILLI.

Chilli (Crean)	1	seer.
Lemon	25	
Salt	1	ch.
Mango (Green)	10	
Mustard Oil	2½	seers.

Procedure—Take big-sized and green chillies and remove their stalks and soak them in juice squeezed out of the lemons and keep in the sun for a day. Then cut the mangoes lengthwise into 4 pieces each, remove the tender stones and put them in a porcelain jar. Pour the prescribed amount of mustard oil and immerse the chillies into it. Place the whole in the sun for a week and pack air-tight. Place in the sun occasionally.

KARELA.

Karela	25	
Lemon	20	
Fenugreek	1	tollah.
Cumin Seed, White	½	tollah.
" " Black	½	tollah.
Chilli (Green)	25	
Salt	2	ch.
Mustard Oil	2½	seers.

Procedure—Cut the *karelas* into twos, remove the seeds and have them half boiled in water. Mix the spices, viz., fenugreek and cumin seed, white and black and divide this into 25 parts. Now put one part of this and one green chilli between the two pieces of *karelas* and sew them up to enclose the spices within. They may also be tagged with small wooden chips. Next besmear them with salt on a stone plate and pour over them the juice extracted from the lemons and place in the sun. When dried put them in a wide-mouthed bottle and pour mustard oil. Close the mouth well and place in the sun for a month.

ELEPHANT'S FOOT (OL).

Elephant's Foot	2	seers.
Tamarind Leaves	8	ch.
Lemon	20	
Salt	4	ch.
Mustard Oil	2½	seers.

Procedure—Take *ol* of the finest variety and peel off the skin. Then cut them into cubical pieces each weighing about half a chhatak. Next take about 3 seers of water in an iron pan and bring to a boil. Then drop into it the pieces of *ol* and the tamarind leaves. Continue boiling until the *ol* is well-done and soft. Then drain off the water. When dry besmear with salt and the juice extracted from the lemon. Place in the sun for 3 days and cover over with mustard oil.

ELEPHANT'S Foot (OL).

(Whole).

Elephant's Foot	1	seer.
Tamarind Leaf	1	seer.
Green Tamarind Juice		q.s.
Salt		q.s.
Mustard Oil		q.s.

Procedure—The *ol* should be more than 1 seer in weight. First of all, the peel should be removed. The *ol* is then boiled in water in an earthen vessel with tamarind leaf. When the *ol* is well cooked, pick it up and besmear its surface with salt and juice of green tamarind. Put in the sun. Next day again treat the *ol* with salt and tamarind juice as before and put in the sun. Repeat the operation for 7 days. Then treat it with sufficient quantity of fried and powdered cumin seed, black cumin seed, white fenugreek, chillies and mustard seed. Cover up with mustard oil the next day. The elephant's foot will be ready for use after 3 months.

HOGPLUM.

Hogplum (Tender)	1	seer.
Salt	4	ch.
Ginger	4	ch.
Mustard Oil	1	seer.

Procedure—1 seer of green and tender hogplum is besmeared with the salt and put out in the sun for three days. Bottle up in

a wide-mouthed vessel and pour mustard oil over the fruits. Finally put in the ginger after cutting it into slender chips. The bottle should be exposed to the sun for a month before use.

EMBLIC MYROBALAN.

Emblic Myrobalan	50	
Curd	4	ch.
Salt	2	ch.
Ginger	4	ch.
Fenugreek	$\frac{1}{2}$	ch.
Cumin Seed, Black	$\frac{1}{2}$	ch.
Juice of Emblic Myrobalan	8	ch.
Lemon Juice	8	ch.

Procedure:—The emblic myrobalans should be green, preferably of Benares. Make 10 to 12 incisions with a fork in each of the nuts. Besmear their surface with salt and curd and bring out to the sun for 2 days. Then intimately mix slender chips of ginger into the body of the preparation and finally add fenugreek and black cumin seed. Put in a wide-mouthed vessel and pour over them juice squeezed out of emblic myrobalans and lemon juice. Expose to the sun and dew alike for one month.

KAMRANGA.

Kamranga	1	seer.
Curd	8	ch.
Salt	4	ch.
Fenugreek	1	ch.

Cumin Seed, Black	1	ch.
Ginger	4	ch.
Vinegar	1	seer.

Procedure—Cut open the veins of the *kamrangas* and besmear the surface of the fruits with curd and salt. Expose the whole to the sun and when dried up put them in a wide-mouthed bottle and pour into it the vinegar, fenugreek and cumin seed and finally the ginger cut into slender pieces. Bring out to the sun for a month to mature.

KARAMCHA.

Karamcha	1	seer.
Salt	1	ch.
Mustard Oil	2½	seers.

Procedure—Wash the *karamchas* cleanly and allow the water on the surface to dry. Now besmear them in a porcelain or glass vessel with 1 chhatak of salt. Water will exude from the *karamchas*: throw this away after three days. Then place them in a jar and pour 2½ seers of mustard oil. Put in the sun and in the dew for fifteen days. Close the mouth tightly and place in the sun occasionally.

TOMATO (GREEN).

Procedure—Slice and steam green tomatoes till they begin to soften, take from the steamer and put in jars, add a little salt, about a teacupful of sugar, half of a spoonful of pepper, cloves and cinnamon each, one-

fourth of a spoonful of spice, some whole mustard seed and slice one or two good sized onions with it; cover the whole with vinegar and let stand twenty-four hours; then scald the liquid and when cold it is ready for use. The seasoning is for one gallon.

CUCUMBER.

Procedure:—Take some cucumbers, and cover them with good vinegar. To each pint of vinegar allow $\frac{1}{2}$ oz. of pepper-corns, $\frac{1}{2}$ oz. of allspice, $\frac{1}{2}$ teaspoonful of salt. Peel the cucumbers, cut them into $\frac{1}{2}$ in. slices, sprinkle them liberally with salt, and let them remain until the following day. Let the cucumbers drain for at least 2 hours on a hair sieve, then place in wide-necked glass bottles. Boil the vinegar, salt, peppercorns and spice together, pour it, while hot, over the cucumbers, and cover closely. If stored in a cool, dry place, this pickle will keep good for some time; but as it is liable to become mouldy, the bottles should be frequently examined. When the first speck of mould appears reboil the vinegar, immerse the slices of cucumber in it for 1 minute, then put them into a clean, dry bottle, and pour the boiling vinegar over them. It requires 2 days.

LIME.

Limes	25
Salt	4 oz.
Green chillies	4 , ,
P. C. 4.	

Green ginger	4	oz.
Mustard seed freed from husks	2	"
Ground turmeric	1	"
Good vinegar	1½	pt.

Procedure—Cut the limes across in halves, squeeze out all the juice, add 2 oz. of salt, and cover closely. Sprinkle the remaining salt over the rinds, let them remain for 6 hours, then dry them in the sun for 3 days, or until hard. Boil the chillies, green ginger, mustard seed and turmeric in the vinegar for 20 minutes. Let the preparation cool, mix it with the lime juice, and strain it over the lime rinds, previously laid compactly in wide necked bottles or jars. Cover closely, place them in the sun for 3 or 4 days, then store for use.

MIXED PICKLES.

Procedure—To each gallon of vinegar allow $\frac{1}{4}$ lb. of bruised ginger, $\frac{1}{4}$ lb. of mustard, $\frac{1}{4}$ lb. of salt, 2 oz. of mustard seed, $1\frac{1}{2}$ oz. of turmeric, 1 oz. of ground black pepper, $\frac{1}{4}$ oz. of cayenne, cauliflowers, onions, celery, cucumber, beans, water cress, capsicums, etc. Have a large jar, with a tight-fitting lid, in which put as much vinegar as required, reserving a little to mix the various powders to a smooth paste. Put into a basin the mustard, turmeric, pepper and cayenne; mix them with vinegar, and stir well until no lumps remain; add all the

ingredients to the vinegar, and mix well. Keep this liquor in a warm place, and thoroughly stir it every morning for 1 month, with a wooden spoon, when it will be ready for the different vegetables to be added to it. As these come in season, have them gathered on a dry day, and after merely wiping them with a cloth to free them from moisture, put them into the pickle. The cauliflowers must be divided into small bunches. Put all these into the pickle raw, and at the end of the season, when as many of the vegetables as could be procured have been added, store the pickle away in jars, and tie over with bladder. This old-fashioned method of preserving vegetables is largely employed by those who live in the country. Keep for 3 months in a cool, dry place before use.

TOMATOES AND ONIONS.

Procedure :—Take an equal weight of firm tomatoes and medium-sized onions; and vinegar to cover. To each pint of vinegar allow 1 teaspoonful of pepper-corns, $\frac{1}{2}$ teaspoonful of allspice, tie together in muslin; cover with vinegar, and simmer very gently for 5 or 6 hours. Turn into wide-necked bottles or jars; when cold, cover closely, and store in a cool, dry place.

PEARS (SWEET).

Procedure :—Choose firm pears. To each allow $\frac{1}{2}$ lb. of brown sugar and $\frac{1}{4}$ pt. of malt

vinegar; cloves, cinnamon, all-spice 1 oz. each or q.s. Peel the pears, and tie the spices in muslin. Place the vinegar, sugar and spices in a preserving pan; when boiling, add the pears, and cook them gently until tender. Remove the pears to a bowl or large basin, boil the syrup for 10 minutes longer, then pour it over the fruit. On the following day boil up the syrup, and repeat the process the two following days. On the third day place the pears in jars or wide-necked bottles, and remove the spices before adding the vinegar to the fruit. Store in a dry, cool place. It requires 3 days.

PACKING FOR EXPORTING.

Pickles are now-a-days exported to foreign countries amounting to several lakhs of rupees. In order that they may reach the destination in good condition they should be put in wooden casks of suitable sizes. This will not only keep the material in good order but will also prevent waste by breakage.

CHAPTER V.

MAKING OF CHUTNEYS.

IN preparing chutneys, an extract of the fruits or vegetables is generally made, or these may be mashed or even cut into small pieces or slices. When in pieces these are cooked till they are tender. Lemon juice or extract of mashed unripe tamarind is employed during cooking. Much of the remarks made previously in connection with the pickles holds good in the case of *chutneys*, and spices generally in powdered condition are added according to taste. The bottles should be sunned occasionally. A few recipes follow:—

GREEN MANGO.

Mango (Green)	20
Sugar	1 seer.
Salt	4 ch.
Black Pepper	1 ch.
Cumin Seed, White	1 ch.
" " Black	1 ch.
Fenugreek	1 ch.
Vinegar	1 seer.

Procedure :—Select green mangoes, wash them clean, peel and unseed and bruise them

by pounding on a stone with a muller. Have the white cumin seed properly baked and then reduce to powder all the spices together. To the mangoes then add the sugar and mix the spices along with salt. Lastly incorporate the vinegar and bottle. Place in the sun from time to time.

GREEN MANGO.

(*Sweet*)

Mango (Green)	25	
Sugar Cane Molasses	2	seers.
Salt	4	ch.
Chilli	2	ch.
Fenugreek	1	ch.
Cumin Seed, White	1	ch.
,, Black	1	ch.
Black Pepper	1	ch.
Ajowan	1	ch.
Parsley	$\frac{1}{2}$	ch.

Procedure :—The mangoes are peeled and cut into small pieces and bruised well with a stone muller. Place them in a shallow stone plate, mix salt intimately and keep out in the sun. When the watery secretion coming out of the mango as a result of the treatment dries up, molasses are added and the whole is again sunned for drying. Finally add the spices well powdered, fenugreek, chilli and cumin seeds being fried beforehand. Allow to dry up, place in a chinaware and put in the sun.

RIPE MANGO.

Mango Juice	$1\frac{1}{2}$	seers.
Sugar	1	seer.
Salt	4	ch.
Lemon Juice	8	ch.
Cardamom Minor	$\frac{1}{4}$	tollah.
Black pepper	1	ch.
Cumin Seed, White	1	ch.
,, ,, Black	1	ch.
Vinegar	8	ch.

Procedure :—Choose the required number of good sweet mangoes, clean, peel, mash and strain the mango pulp through a piece of cloth. Hold the juicy pulp in a shallow stone vessel, and treat with lemon juice and the pounded spices, cumin seeds being baked prior to being ground. Finally add the vinegar and expose to strong sunshine for 7 days together, when the *chutney* is ready for use. Bottle up and place in the sun frequently.

MANGO CHUTNEY.

Mangoes (Green)	50	
Vinegar	6	pints.
Sugar	3	lbs.
Tamarinds, stoned	2	lbs.
Raisins, stoned	1	lb.
Ginger, sliced	1	lb.
Cinnamon, powdered	1	dr.
Nutmeg	1	dr.
Salt	1	lb.

Procedure:—Peel and slice the mangoes thinly, sprinkle the salt over them, let them remain for 36 hours, then drain well. Make a syrup by boiling together 3 pt. of vinegar and the sugar. Put the remainder of the vinegar into a preserving pan, add the mangoes, boil up, simmer gently for 10 minutes, then add the tamarinds, raisins, ginger, cinnamon and nutmeg. Cook very slowly for half an hour, adding the syrup until the greater part of the syrup is absorbed. Now turn into bottles, cork securely, and store in a dry place. The preparation requires about $1\frac{1}{2}$ hours to cook.

II.

Mango (Green)	1	seer.
Turmeric Paste	1	tollah.
Mustard Paste	3	tollahs.
Mustard	$\frac{1}{2}$	tollah.
Lime	1	tollah.
Otto of Rose	4	drops.
Ginger Paste	1	tollah.
Parsley, aniseed, fenugreek, black cumin seed and chilli	$\frac{1}{4}$	tollah.
Salt	4	tollahs.
Sugar or Molasses	2	ch.
Mustard Oil	4	ch.

Procedure:—Pare and slice the mangoes. Rub their surface with lime, used for white wash and wash them well in water. Now cover them up for one hour. Then wash

them in hot water and allow to drip. Now take about 1 ch. of mustard oil in an iron cauldron and put on the fire. When the oil becomes frothless, introduce the spices with a little mustard, stir them and cover up. When the mustard seeds begin to shoot, add the mangoes and continue frying. When a little soft, add the remaining salt, turmeric paste, mustard paste and oil. When the mangoes begin to boil, pour in sugar or molasses, stir and again cover. When the whole again boils up, remove the cover and stir till the mango slices become slimy. In the meanwhile fry the remaining mustard in a pan, powder and spray it over the preparation and stir. Again cover up and remove from fire. When cool, add the otto de rose and pack.

MANGO CHUTNEY.

(Sweet)

Mango (Green)	200
Salt	2 seers.
Ginger Brayed	1 $\frac{1}{2}$ seers.
Chilli	$\frac{1}{2}$ seer.
Raisins	2 seers.
Cassia Leaves	6
Sugar	4 seers.
Vinegar	3 seers.

Procedure:—Pare, stone and slice the mangoes. Chop the chillies, raisins and cassia leaves and incorporate them well. Then add

the remaining vinegar. When the *chutney* thickens, remove from fire and bottle when cool.

MANGO CAKE (AMSATTA).

Amsatta (Madras)	1	seer.
Lemon Juice	4	ch.
Mango Ginger	2	ch.
Salt	2	ch.
Black Pepper	$\frac{1}{2}$	ch.
Cumin Seed, Black	$\frac{1}{2}$	ch.
" " White	$\frac{1}{2}$	ch.
Vinegar	1	seer.

Procedure :—Take *amsatta* (dried mango pulp) of the best Madras variety and soak it in vinegar for 24 hours. Next strain through a piece of cloth and place in a pan over a slow fire. Then add freshly-bruised mango ginger, salt and the spices in powder form, cumin seed being previously baked. Remove when the mass thickens.

PINEAPPLE.

Pineapple	$2\frac{1}{2}$	seers.
Sugar Candy	1	seer.
Salt	4	ch.
Black Pepper	2	ch.
Fenugreek	1	ch.
Cumin Seed, White	1	ch.
" " Black	1	ch.

Procedure :—Take pineapples that are big-sized and fully ripe. Pare them carefully so that no eyes are left, cut into small pieces

and bruise well. Besmear the mass with salt in a shallow stone plate and keep out in the sun. When the secretions have dried up, besmear the pineapples with finely powdered sugar candy and again allow the mass to dry in the sun. Then incorporate powdered black pepper, whole fenugreek and black cumin seed, and baked and powdered white cumin seed. Finally bottle.

PEAR.

Pear	1	seer.
Tamarind (Ripe)	8	ch.
Sugar	1	seer.
Salt	2	ch.
Cumin Seed, White	1	ch.
Black Pepper	1	ch.
Vinegar	1	seer.

Procedure :—First pare the pears and cut them into thin longitudinal slices. Then cook the pieces in water until soft, drain off the water and allow the pieces to dry. Next mash the ripe tamarind in water and strain out its extract through a cloth. The extract, it may be noted, should be rendered thin by the addition of sufficient water at the time of mashing. Then bring this to a boil and add the slices of pears. Continue boiling and then add sugar and gradually salt, baked and powdered cumin seed and lastly the powdered black pepper. When the mass thickens, pour in vinegar and boil. Remove when thick and bottle.

BLACKBERRY.

Blackberry Juice	1	seer.
Sugar	1	seer.
Lemon Juice	8	ch.
Salt	2	ch.
Black Pepper	1	ch.
Cumin Seed, Black	1	ch.
" " White	1	ch.
Mango Ginger	4	ch.
Dry Ginger	4	ch.
Vinegar	1	seer.

Procedure :—Extract juice out of ripe blackberries by squeezing. Also extract juice of lemons. Then have the spices all well-pounded after the cumin seeds have been duly baked. Mango ginger should be cut and well-bruised, and dry ginger finely powdered. Making these pre-arrangements put the sugar in a pan over a slow fire and pour in the vinegar and cook gently. When the whole mass is brought to a boil, add the juice of blackberry and cook till the mass gets thickened. Remove from fire and incorporate the other ingredients when the mass is tepid warm. Then bottle and place in the sun occasionally.

ORANGE.

Orange	50	
Rose Water	8	ch.
Curd (Sugared)	4	seers.
Dry Ginger	4	ch.
Salt		as required.

Procedure :—First peel the oranges and remove the fibres and seeds from the cells. Then place them in a porcelain or earthen or enamelled vessel and add the sugared curd and salt as much as desired. Mix these ingredients thoroughly and then incorporate the rose water with constant stirring. Finally add the dry ginger, finely powdered and sifted through a clean cloth. If sugared curd is not available, use may be made of ordinary sour curd to which some sugar has been added.

ABJOSH.

Abjosh	1	seer.
Lemon Juice	1½	seers.
Sugar	1	seer.
Salt	4	ch.
Ginger	8	ch.
Mango Ginger	4	ch.
Black Pepper	2	ch.
Cumin Seed, Black	1	ch.
Cardamom, Minor	½	ch.
,, Major	½	ch.
Pistachio (Brayed)	4	ch.
Rose Water	2	ch.
Water	4	ch.
Vinegar	1	seer.

Procedure :—Express juice out of lemons of the *pati* variety and keep the juice in an enamelled, glass or earthenware pan and not in a metallic pan. Next have the ginger and mango ginger well bruised. To get good

results these are cut into small pieces before being bruised. The spices should all be in a well-pounded condition and cumin seed should be fried before being pounded. Best variety pistachios should be selected and soaked in water. When sufficiently soft, the peel is taken out and the green kernel is well brayed on a stone with a muller as to leave no grit. A syrup is next made with sugar and water and put on fire. When on the point of boiling, add ginger, mango ginger and vinegar; finally to this add the *abjosh* and the brayed pistachio. Continue boiling and remove from fire when the syrup has attained a thick consistency. Then stir in the rose water and finally well mix the spices with the whole mass taking utmost care not to mash the fruits. Bottle while warm.

CAULIFLOWER.

Cauliflower	8	ch.
Tamarind (Ripe)	2	ch.
Sugar	8	ch.
Salt	1	ch.
Lemon Juice	4	ch.
Chilli	1	ch.
Dry Ginger	$\frac{1}{2}$	ch.
Cumin Seed, Black	$\frac{1}{2}$	ch.
,, ,, White	$\frac{1}{2}$	ch.
Vinegar	4	ch.

Procedure—Dress the cauliflowers by rejecting the stem and keeping the flowers

only for use. These are first of all boiled in water and when tender water is drained off and the flowers are further broken into small fragments. Now mash the tamarind in about 4 chhataks of water and strain the extract out. Next put the tamarind extract on fire and cook the cauliflower pieces in it. Then gradually add salt, lemon juice and vinegar. Remove the mass from fire when it thickens. Now add the powdered dry ginger and powdered spices, of which chillies and cumin seeds should be baked previously.

GREEN PAPAW.

Papaw (Green)	1	seer.
Lemon Juice	1	seer.
Sugar	1½	seers.
Mango Ginger	2	ch.
Cardamom Minor	1	ch.
Chilli	2	ch.
Cumin Seed, White	1	ch.
Vinegar	1	seer.

Procedure—First pare the green papaws and cut them into four. Remove the whitish seeds and other undesirable parts. Wash them and cook in lemon juice and vinegar until the papaw becomes tender. Then add to it the sugar and the other ingredients of which mango ginger should be in a finely bruised condition, cardamom seed well powdered and chillies and cumin seed baked and well pounded. Finally bottle.

RIPE TAMARIND.

Tamarind (Ripe)	1	seer.
Sugar	1	seer.
Salt	2	ch.
Dry Ginger	4	ch.
Cumin Seed, Black	1	ch.
" " White	$\frac{1}{2}$	ch.
Fenugreek	$\frac{1}{2}$	ch.
Chilli	1	ch.
Ginger	4	ch.
Water	8	ch.
Vinegar	1	seer.

Procedure :—First bake the spices and have them powdered finely. Then mash the tamarinds in about 8 chhataks of clear water and strain through a piece of cloth. Next cook it in an enamelled or earthen vessel and add the well bruised dry ginger and slenderly sliced ginger and salt into it. After a time when the tamarind extract begins to thicken, add vinegar and continue boiling. When the mass again gets thickened, incorporate the remaining ingredients. Finally bottle in a wide-mouthed vessel and cork air-tight. If placed in the sun from time to time, the preparation keeps for a long time.

BEET.

Beet	1	seer.
Lemon Juice	1	seer.
Sugar	1	seer.

Salt	2	ch.
Chilli	1	ch.
Cumin Seed, White	1	ch.
" " Black	1	ch.
Vinegar	1	seer.

Procedure:—Beets are first peeled, then boiled in lemon juice and mashed, and the extract is strained out. Next vinegar is put in a pan on fire. To this then add the extract of beet and cook well. Salt, sugar and spices in powder form are then added; chilli and cumin seeds are however fried prior to grinding. Cook until a thick consistency is attained and bottle while warm and cork when cool. Place in the sun occasionally.

CARROT.

Carrot	1	seer.
Tamarind (Unripe)	1	seer.
Sugar	1	seer.
Salt	2	ch.
Chilli	1	ch.
Cumin Seed, White	1	ch.
" " Black	1	ch.
Black Pepper	1	ch.
Fenugreek	1	ch.
Water		as required.
Vinegar	1	seer.

Procedure:—Wash and peel off the carrots sufficient to make 1 seer. Have these boiled in water and cut into small pieces. Next boil the unripe tamarinds, mash them with

the hand and strain through a cloth to get an extract. Put this extract of tamarind with a little water over a fire and then add to it the carrot, sugar and salt and boil. After some time stir in the vinegar and when the mass has acquired a thick consistency, add the spices, which have all been well powdered, cumin seed and fenugreek however being fried beforehand.

RAISINS.

Raisins	1	seer.
Lemon Juice (Kagzi)	1	seer.
Sugar	1	seer.
Salt	4	ch.
Black Pepper	1	ch.
Cumin Seed, Black	1	ch.
Alubukhara	8	ch.
Currants	4	ch.
Almond (Brayed)	8	ch.
Cardamom Minor	$\frac{1}{2}$	ch.

Procedure:—First of all carefully clean raisins, currants and *alubukhara* and soak them overnight in the juice of *kagzi* lemon. Next morning mash them well and strain through a cloth. Now have the spices powdered, cumin seed being previously fried. Have also the almond brayed into a fine paste. To the extract then add the almond paste, powdered spices, salt and sugar and sun for 3 days. Bottle air-tight and keep in the sun occasionally.

GRAPE.

Grape	1	seer.
Lemon Juice	1	seer.
Sugar	1 $\frac{3}{4}$	seers.
Dry Ginger	2	ch.
Black Pepper	2	ch.
Cumin Seed, Black	1	ch.
Ginger	1	ch.
Dry Dates	4	ch.
Vinegar	1	seer.

Procedure:—First wash the grapes and soak them for 24 hours in the lemon juice. Then mash them and strain through a piece of cloth. Bake the cumin seed and then reduce to powder. Also pound finely dry ginger and black pepper. Ginger should also be peeled and cut into slender slices. Next bring the vinegar to boil and pour the extract of grapes into it. Add the dry dates and then gradually the other ingredients. Remove from fire when the whole thickens. Bottle when cool and place the bottle in the sun from time to time.

ALUBUKHARA.

Alubukhara	1	seer.
Lemon Juice	1	seer.
Sugar	1 $\frac{1}{2}$	seers.
Salt	2	ch.
Black Pepper	1	ch.
Cumin seed, Black	1	ch.
Raisins	4	ch.

Almond (Brayed)	4	ch.
Cardamom Minor	$\frac{1}{2}$	ch.
Mint (Brayed)	2	ch.
Ginger	1	ch.
Dry Dates	4	ch.

Procedure :—First clean the *alubukharas* and soak them in the lemon juice overnight. Next day mash them and strain through a cloth. Now have the kernels of almonds and mint finely brayed and the spices well-pounded, taking care that the cumin seed is fried prior to being ground. Raisins and dry dates also should be washed clean. Next mix all the ingredients thoroughly, sun the mass for three days successively and bottle. Bring out the bottles in the sun from time to time.

APRICOT.

Apricot	1	seer.
Lemon Juice (Kagzi)	1	seer.
Sugar	1	seer.
Salt	4	ch.
Black Pepper	1	ch.
Cardamom Minor	1	ch.
Cumin Seed, Black	1	ch.
Coriander Leaves (Brayed)	2	ch.
Dry Date	4	ch.
Almond (Brayed)	4	ch.
Vinegar	1	seer.

Procedure :—Juice of lemons of the *kagzi* variety is expressed. The apricots after

being cleaned and washed are allowed to be immersed in this juice for 24 hours. Then mash the fruits well by hand and strain through cloth to get an extract of the apricots. Next have the spices well-powdered taking care that the cumin seed is fried before being powdered. Cleanly wash the dry dates and have coriander leaves and kernels of almonds finely brayed to yield the prescribed amounts. Next mix the ingredients excepting vinegar into the extract of almond and put in a wide-mouthed vessel and bring out to the sun for seven days. Finally add the vinegar and again expose the bottle to the sun for seven days. Then pack air-tight and put in the sun occasionally.

DATE.

Date (in pot)	100
Lemon Juice	8 ch.
Salt	4 ch.
Cardamom Minor	1 ch.
Black Pepper	1 ch.
Vinegar	1 seer.

Procedure :—First bring to boil the lemon juice and vinegar; then add the dates and salt and continue boiling. When the dates are well-boiled and tender, remove from fire and incorporate the powdered cardamom minor and black pepper. Bottle when thick. Place in the sun from time to time.

FALSA.

Falsa	1	seer.
Sugar	1	seer.
Salt	4	ch.
Lemon Juice	8	ch.
Black Pepper	1	ch.
Cumin Seed, White	1	ch.
" " Black	1	ch.
Fenugreek	1	ch.
Aniseed	1	ch.
Dry Ginger (Powdered)	4	ch.
Chilli	2	ch.
Ginger		q.s.
Vinegar	8	ch.

Procedure :—First of all chop the ginger after stripping of its skin into slender pieces, as fine as the grains of rice. Next fry in a pan the following spices together, viz., black pepper, cumin seed, both white and black and fenugreek and then pound them with aniseed in a mortar with a pestle. The chillies should next be well pounded. The powder must not contain any grit or grain within the mass. Finally to prepare the *chutney* put the sugar on fire and add to it the lemon juice and after a time the vinegar. When the whole is brought to a boil drop the *falsas* into it along with the slender pieces of ginger. Remove from fire after some time and then add the already pounded spices and besmear the *falsas*

with it taking the utmost care that the fruits are not broken. Then put in a jar.

JARDA ALU.

Jarda Alu	1	seer.
Dry Date	4	ch.
Lemon Juice	4	ch.
Curd	8	ch.
Salt	2	ch.
Dry Ginger	2	ch.
Black Pepper	2	ch.
Cumin Seed, White	$\frac{1}{2}$	ch.
Cumin Seed, Black	$\frac{1}{2}$	ch.
Chilli	1	ch.
Vinegar.	4	ch.

Procedure—First of all clean the *jarda alu* and dry dates and their seeds. The dry ginger and spices are well-pounded but chillies and cumin seed are fried beforehand. To prepare the *chutney*, the *jarda alu* and dry dates are first boiled in water and when well done these are strained out and water is shaken off from them. Then placing them in a pan on a fire, stir in the curd and cook till the curd is almost dried up. To this then add salt and lemon juice and continue boiling. Finally pour in vinegar and let the whole simmer briskly till almost dry. Then incorporate well the other ingredients one by one and pack in bottles, close the mouth air-tight and expose to the sun.

GOOSEBERRY.

Gooseberries (Unripe)	8	ch.
Raisins (Stoned)	2	quarts.
Salt	8	ch.
Mustard Seed	8	ch.
Sugar	8	ch.
Garlic	6	ch.
Chilli	3	ch.
Vinegar	2	quarts.

Procedure :—The mustard seed is gently dried and bruised. The sugar is made into a syrup with a pint of the vinegar. The gooseberries are dried and boiled in a quart of the vinegar. The garlic is to be well bruised in a mortar. When cold, gradually mix the whole in a large mortar, and with the remaining vinegar thoroughly amalgamate them. The whole is to be tied down close. The longer it is kept, the better it will become.

BAINCHI.

Bainchi (Half-ripe)	$2\frac{1}{2}$	seers
Sugar	$1\frac{1}{2}$	seers
Salt	8	ch.
Dry Ginger (Powdered)	4	ch.
Dry Ginger (Bruised)	8	ch.
Chilli	4	ch.
Cumin Seed, White	2	ch.
,, ,, Black	4	ch.
Black Pepper	2	ch.
Allspice	2	ch.

Fenugreek	4	ch.
Almond	8	ch
Dry Date	25	
Lemon	25	
Water	4	ch.
Vinegar	1	seer.

Procedure :—Select half ripe *bainchis* and collect the above ingredients. Bruised dry ginger should consist of small pieces. Fry in a pan chillies, cumin seed, black and white, black pepper and fenugreek and have them finely powdered. Allspice should also be well-pounded, but it need not be fried beforehand. Almonds should be broken and the kernels cleaned and peeled and finally brayed. 8 ch. of brayed almond is required for the operation. The dry dates should be unseeded and each one must be cut into eight pieces lengthwise. Lemon juice should be extracted by squeezing the lemon. Now dissolve the sugar in water and put on fire in an earthenware pan. When boiling briskly add to this the pieces of dry dates, then the brayed almond and the bruised dry ginger and last of all the *bainchis*. Boil continuously and after a time pour in the lemon juice and continue boiling. Remove from fire when the syrup is pretty thick. Next intimately mix the powders already made. 1 tollah of powdered cardamom minor may also be added before the *chutney* is bottled up.

EMBLIC MYROBALAN.

Embllic Myrobalan (Raw)	100	
" " (For juice)	150	
Sugar	2½	seers.
Salt	4	ch.
Lemon Juice	8	ch.
Cardamom Minor		
(Powdered)	1	ch.
Rock Salt	4	ch.
Vinegar	1	seer.

Procedure—First of all, out of 150 emblic myrobalans reserved for juice take 50 and extract juice out of them by smashing and squeezing. Now put 100 raw emblic myrobalans into the juice and put the whole to bright sunshine till the juice is completely dried up and the myrobalans receive as if a coating of juice over them. Next squeeze out the juice from another 50 emblic myrobalans and put the previously treated whole fruits into the juice and repeat the process of drying in the sun. When the juice has dried up as before, put the fruits again in the juice obtainable from the remaining 50 emblic myrobalans. When again dry, sugar is added to the fruits and dried as before. Finally pour the lemon juice over the fruits and have them dried as before. Then put in a jar and pour in vinegar and rock salt over them. Put in the sun for 7 days. Then add the powdered

cardamom minor and bottle up. The bottle need not be put in the sun later on.

The preparation is very invigorating.

AJOWAN.

Ajowan	4	ch.
Bael Sunth (Dried Wood Apple)	4	ch.
Mutha	4	ch.
Pomegranate Peel	4	ch.
Orange Peel	4	ch.
Ginger (Bruised)	4	ch.
Rock Salt	2	ch.
Vit Labana	2	ch.
Lemon Juice	1	seer.

Procedure—The first six ingredients are brayed with a small quantity of water on a stone with a muller and made into a paste like brayed sandal. Then add rock salt and *vit labana* and bray again. Last of all treat the whole with lemon juice and keep out in the sun for drying.

The *chutney* has great medicinal properties. It cures loss of appetite, flatulence of belly, acidity, diarrhoea, etc. It helps greatly the digestive faculty. The usual dose for adults is one-fourth tollah once daily.

TOMATO CHUTNEY.

Take one seer of ripe tomato and add an equal amount of sugar and about $\frac{3}{4}$ seer of

water. Boil down to a heavy pressure and put in jars while still hot. If desired, spices may be used.

MINT.

Mint	1	seer.
Chilli	16	
Tamarind or Lemon Juice	4	ch.
Salt		as required.

Procedure :—First bray the mint, and chillies separately. Mix them together with salt and then add the tamarind or lemon juice. A little oil and sugar may be added as a dressing, if desired. In summer, brayed green mango may be added as the sour ingredient instead of lemon or tamarind.

SORREL.

Leaves and young stalks of Sorrel	1	seer.
Mint	4	ch.
Coriander Leaves	2	ch.
Lemon Juice	1	seer.
Chilli (Green)	8	
Salt		as required.

Procedure :—First, the leaves and young stalks of sorrel, mint and coriander leaves are bruised well. Then add to this the lemon juice, chillies and bray well. Mix salt as required and, if desired, one seer of sugar may also be incorporated. Keep out in the sun for 3 days and bottle.

MINT AND CORIANDER LEAF.

Mint	$\frac{1}{2}$	seer.
Coriander Leaf	4	ch.
Vinegar	1	seer.
Sugar	4	ch.
Cardamom Minor (Powdered)	1	ch.
Dry Ginger, Powdered	1	ch.
Chilli, Fried & Powdered	$\frac{1}{2}$	ch.
Cumin Seed, Black , ,	$\frac{1}{2}$	ch.
Cumin Seed, White , ,	$\frac{1}{2}$	ch.
Aniseed	$\frac{1}{2}$	ch.
Ginger, Sliced	2	ch.

Procedure :—Mint and coriander leaf are first brayed on a stone slab with a muller. The paste is then put into the vinegar and strained. Then mix the other ingredients one by one, put in a bottle, close air-tight and frequently put in the sun.

This *chutney* is very relishing.

BENGAL CHUTNEY.

Raisins	8	ch.
Lemons	12	
Tamarind Pulp	8	ch.
Tomato Pulp	8	ch.
Apples	8	ch.
Garlic	2	ch.
Onions	6	ch.
Chilli	4	ch.

Ginger	8	ch.
Sugar	8	ch.
Vinegar	8	pints.

Procedure:—Pulp of tamarind and tomato is first obtained. Juice of 6 lemons is pressed out while the rind of the 12 lemons is grated. Garlic is peeled and onions chopped. Ginger is powdered. Mix the whole thoroughly together and keep it for a month in a warm place to ferment. Sun it occasionally and put it into small jars. The garlics and onions may be left out, if so desired.

CHUTNEY INDIANS.

Malt vinegar	1	qt.
Sour apples, peeled, cored and sliced	1	lb.
Onions, peeled and chopped	$\frac{1}{2}$	lb.
Moist sugar	1	lb.
Raisins, stoned and quartered	$\frac{1}{2}$	lb.
Salt	4	oz.
Ground ginger	4	oz.
Dry mustard	2	oz.
Cayenne	$\frac{1}{4}$	oz.
Garlic, finely chopped	4	cells.

Procedure:—Cook the apples, onions and garlic with the salt, sugar and vinegar until quite soft, and pass them through a fine hair sieve. Add the raisins, ginger, cayenne and mustard, mix well together, turn into a jar,

and stand it in a warm, but not hot place, until the following day. Have ready some perfectly dry, wide-necked small bottles or jars, fill them with chutney, and cover closely so as to exclude the air. This chutney may be kept for a year or two.

CHUTNEY SAUCE.

Apples	8	ch.
Tomatoes	8	ch.
Raisins	8	ch.
Salt	4	ch.
Chillies	2	ch.
Ginger (powdered)	2	ch.
Garlic	1	ch.
Onion (small)	1	ch.
Vinegar	6	quarts.
Lemon Juice	2	quarts.

Procedure :—Pare and core sour apples and pound the first eight ingredients together. Then add the vinegar and lemon juice. Let it stand in a vessel for a month and give it a good shake daily. Then pour off the clear liquid and bottle it. The residue may be used in aid of a second batch of sauce.



CHAPTER VI.

MAKING OF MORABBAS.

MAKING of morabbas requires ripe experience. Much depends upon the cooking of the syrup. The final product should keep its form and plumpness and be crisp rather than tough and soft. When done, the fruits should be fully permeated with juice as in the case of *rosagullahs*.

PRELIMINARY TREATMENT.

Soaking in water before cooking in juice is sometimes practised with profit. This retards shrinkage of the stuff when cooked in the syrup and prevents it from turning stiff. This also yields a favourable influence on the internal structure of the eatables and makes them porous and thus inclined to draw in juice within. Some articles are even boiled in water to make them tender; some others are treated with lime, curdled milk, whey, etc., to remove their bitterness prior to being cooked in syrup.

In order that the vegetables and fruits may be thoroughly cooked and syrup may enter and sweeten the inside, incisions are made all round them with any pointed implement such as an awl or a fork.

PRINCIPLES OF COOKING.

Cooking, however, is the most difficult task inasmuch as the consistency of the syrup must be maintained at points best suited to the several fruits, so that syrups may permeate the whole fruit without shrinking or toughening it. If the eatable to be preserved is dropped at once into a too dense and hot juice, as a result of osmosis juice will be extracted out of the fruits, in consequence of which the fruit gets greatly shrunken. Moreover a coating of thick juice forms on the outside so that little juice can enter the fruit. In order to prevent this toughening it is imperative that the cooking of the articles is started in a thin syrup and then the syrup is thickened gradually by boiling it with the fruit. Juicy fruits however may be introduced at the very start into a heavier syrup of medium consistency because the abundant juice of the fruit rapidly reduces the density of the syrup. Acid fruits also may be added to the medium syrup, for due to this some of the sugar is inverted, which means that sugar is changed to a form which will not crystallise readily.

COOKING PROCEDURE.

While cooking take care that the fruits are well-covered with syrup; otherwise the top pieces are liable to dry up and deterioration of quality will take place. Sometimes the syrup

gets thickened before the fruits and the vegetables are sufficiently tender or soft. Specially this is the case when a small amount of syrup is boiled in a large pan. To remedy this, get the syrup thinned out by the addition of more water or thin syrup.

The usual course should be to begin cooking in a thin syrup and apply gentle heat. The process should be carried on gradually so that the eatable may be fully saturated with syrup without shrinking. The finished product should keep its original form, be plump, mellow and clear.

Next, the preserves are to be cooled rapidly if it is desired to keep the natural colour of the fruit. This will also improve the flavour. Shallow enamelled trays or pans are desirable for cooling. In America devices are made to have the temperature brought down rapidly by running cold water underneath the pan. When finished, otto and flavouring reagents may be added, if required.

A few recipes follow:—

GREEN MANGO.

Mango (Green)	1	seer.
Sugar	2	seers.
Lime	3	tollahs.
Salt	2	tollahs.

Procedure:— Wash the mangoes, peel and core, and cut into small cubes. Make incisions

into the pieces with a pointed fork. Then make a solution of the lime in water and allow it to soak for $1\frac{1}{2}$ hours. Take out and wash in clear water. Besmear with salt and leave covered up in some plate for half an hour. Next wash them in hot water and boil them in water in a pan until they are soft. Then drain off the water and pour thin sugar syrup, made of sugar and requisite amount of water. Continue cooking gently until the syrup becomes viscous. Leave aside for a while in a clean vessel and bottle when cool. Whole mangoes may be preserved in this manner: these may be cut open, stuffed with pistachios, almonds, etc., and sewn and then preserved as whole fruits.

FAZLI MANGO.

Fazli Mango	1	seer.
Sugar	1	seer.

Procedure :—Peel off the mangoes which should be of the *Fazli* variety and cut them lengthwise into slices about three-fourths of an inch wide. Make eight to ten incisions on each of these with the fork and allow them to soak in cool water for half an hour. Then pick out the fruits and shake off the adhering water from them. Now make ready a thin syrup with sugar and when boiling drop the pieces of fruits into it. Cook with careful stirring and when the juice thickens, remove from fire and transfer into a separate vessel.

Finally put in bottle and pour in the thick syrup left in the pan over them and close the mouth air-tight and seal it up with pitch.

JACK FRUIT.

Jack Fruit (Crisp)	1	seer.
Sugar	1	seer.

Procedure :—First take off the thorny skin of a ripe jack fruit and pick out the crisp flakes from within. The flakes are next unseeded and incisions are made on them with a pointed fork. Allow these to soak in cool water for one hour. Then skim these off and shake off the adhering water from them. The flakes are then cut, each into four pieces. Now apply heat to a pan-ful of water and when boiling, drop these pieces into it. Continue boling taking care that these are not over-done or mashed. Now make ready a thin syrup with sugar and the requisite amount of water, and when boiling drop in the pieces of jack fruit and cook till the consistency of the *morabba* is obtained. Then remove and finally bottle in a wide-mouthed vessel completely air-tight. Seal the mouth with pitch.

GUAVA.

Guava	1	seer.
Sugar	2	seers.
Lime	3	tollahs.
Salt	3	tollahs.

Procedure :—First clean the guavas in clear water, peel off the skin and cut into small cubes or parallelopipeds. Make small incisions on the pieces with a fork and allow them to soak for 24 minutes in a solution of lime in water. Then strain them out and wash in clear water. Now have ready boiling water in a pan. Drop the fruits into it and continue boiling till the pieces are well-boiled. Then remove from fire and allow the water to drain off. The fruits are then transferred to a separate vessel; pour thin syrup made of sugar and requisite amount of water over them and cook over a slow fire till the syrup is thickened, when it is ready for being bottled.

Great care should be taken in the selection of guavas. Neither ripe nor green guavas should be employed, for the former is liable to be mashed during the course of treatment and the latter will yield a stiff product. Select ripening guavas, *i.e.*, those which are still green but are just getting tender.

WOOD APPLE.

Wood Apple (Green)	1
Sugar	as required.

Procedure :—Unripe wood apples are required for making *morabbas*. First break the wood apple and remove the hard shell-like coating and cut the pulp into circular slabs. Reject the seeds and soak in cold water for one hour. Drain off the water and allow the

slices of wood apple to drip. Now prepare a sugar syrup on a slow fire and cook the pieces in it till these are ready as *morabba*. Arrange them side by side on a plate and when cool store in any suitable vessel.

The wood apple preserves are very efficacious against diarrhoea and dysentery and other disorders of the bowels, in which cases these are generally prescribed.

RIPE PAPAW.

Papaw	5
Sugar	as required.

Procedure :—Select large, fleshy, ripe *papaws*, say, of Ranchi. They must be tight and not overripe. First peel the skin and core the seeds. Gently wash in clean water and cut into pieces. Now prepare sugar syrup over a slow fire and when boiling throw into it the *papaw* pieces. Cook carefully and remove when done. Transfer to a separate plate to cool. Then bottle and close air-tight.

PINEAPPLE.

Pineapple	1
Sugar	as required.

Procedure :—Pare the pineapple, core the eyes, and reject the central stalk. Cut into suitable slices. Then arrange a layer of these slices in a pan and strew over them sugar. Fill up the pan with similar alternate layers of pineapple slices and sugar. After some

time the juice of the pineapple will melt the sugar. Then place the pan over a slow fire and cook. Take away after some time and store away the whole thing. The operation of cooking is to be repeated daily for some time for seven days together. Finally add a further quantity of sugar and syrup and cook till the whole is viscous.

PEAR.

Pear	1 seer.
Sugar	1 seer.
Rice Flour	5 tollahs.
Alum	1 tollah.
Cardamom Minor	$\frac{1}{2}$ tollah.
Rose Water	1 tollah.

Procedure :—Peel the pears and core the seeds by cutting them into two. Make incisions with the fork and cut into small cubical pieces. Now soak them in cool water for one hour. Then boil them in a solution of alum and rice flour in water. When soft, ladle out and wash in clean water. Now prepare a thin sugar syrup over a slow fire and throw the pieces into it. Cook in gentle heat; when viscous and almost done, add powdered cardamom and rose water and mix well. Allow to cool on a separate plate and bottle air-tight when cool.

This preserve is toothsome and nourishing.

APPLE.

Apple	1 seer
Sugar	1 seer
Rice Flour	5 tollahs
Alum	1 tollah
Cardamom Minor	$\frac{1}{2}$ tollah
Rose Water	1 tollah

Procedure—Peel the apples, reject the core and cut into quadrants. Make incisions on the apples and steep them under cool water for an hour. Now have them boiled in a solution of rice flour and alum and wash in clean water. Then transfer them to a thin syrup and heat over a moderate fire. When the syrup thickens, add the powdered cardamom minor and rose water. Put in a clean jar and close air-tight. This *morabba* keeps for a long time.

ROSE APPLE.

Rose Apple	100
Sugar	as required.

Procedure—Take best rose apples and reject the green tips on both ends of the apple but care must be taken not to make any hole. Then wash them in cool and clear water and boil them thoroughly in a pan. Then take out the apples and allow them to drip. Finally prepare a thin syrup and cook the apples in it well till the syrup turns viscous. Ladle out the apples and keep in a separate vessel for some time. Then bottle.

BLACKBERRY.

Blackberry	1 seer.
Sugar	as required
Salt	2 ch.

Procedure:—Select large and plump blackberries. They must not be over-ripe. Wash them cleanly, then besmear them with salt and wait for 5 minutes and not more. Then wash them in hot water. Now prepare a thin syrup over a slow fire and when boiling throw in the berries. Apply slow heat and cook carefully. When the syrup thickens ladle out the berries and leave them aside in a separate plate for some time. Bottle when a little dry in contact with air.

This preserve whets the appetite and removes inappetency. It is highly efficacious for those who suffer habitually from bowel complaints.

ORANGE.

Orange	50
Sugar	as required

Procedure:—Peel the oranges and remove the fibrous matter from the cells. Soak the separated cells in clear water for half an hour. Strain out the cells and allow the water to drip. Now prepare a thin syrup with sugar and water over a slow fire and cook the orange cells for some time until they become tender. Bottle when cool.

BANANA.

Banana	1 seer.
Sugar	1 seer.

Procedure:—Select bananas of the *marta-man* variety and after paring their skin cut them into twos. Make incisions on all sides of the bananas numbering eight to ten on each piece. Care should be taken at this stage not to contaminate the surface of the fruits with dirt and dust of the hand and also not to mash the fruits. Then have these washed in cool water. Next have ready a thin syrup of sugar and water on a slow fire. When the syrup boils up, drop the bananas and cook gently over a moderate fire. When the syrup thickens and enters into the body of the fruits and the whole acquires the consistency of the *morabba*, remove from fire and bottle in a wide-mouthed vessel.

The *morabba* is delicious and at the same time keeps long.

SARDA.

Sarda	1 seer.
Sugar	1 seer.

Procedure:—Select *sardas*, just ripe and peel off the skin and remove the seeds and undesirable matter from the inside. These are then cut into small cubes and incisions are made on them with a fork. Then allow these

to soak in cool water for an hour and shake off the adhering water from the surface. Then prepare a thin syrup with sugar and water over a slow fire and when boiling drop in the pieces of *sarda* and cook cautiously till the syrup thickens. Finally bottle in a clean vessel.

The *morabba* is palatable and at the same time wholesome. One month's use will materially build up the constitution.

GRAPE.

Grape	1 seer.
Sugar	1 seer.

Procedure :—Select half-ripe grapes and reject the injured and the rotten ones. Then prepare a syrup with sugar and water over a slow fire and while boiling throw into it the grapes. Cook for some time and bottle when cool. This preserve is very nutritious.

WATER MELON.

Water Melon Pulp	1 seer.
Sugar	1 seer.
Rice Flour	5 tollahs.
Alum	1 tollah.
Cardamom Minor	$\frac{1}{2}$ tollah.
Rose Water	1 tollah.

Procedure :—Select just ripe water melons with crisp pulps, preferably of the Goalundo variety, cut open lengthwise, remove the seeds

from within and cut into cubes leaving the peel off. Soak 1 seer of the pulp in water for 1 hour and boil in a solution of rice flour and alum in water. When tender ladle them out, and wash in clean water. Now transfer them to a simmering syrup solution and cook over a moderate fire. When the consistency of *morabba* is reached, mix the powdered cardamom minor and rose water and remove from fire.

APRICOT.

Apricot	1 seer.
Sugar	1 seer.

Procedure :—Wash the apricots and soak in cool water for an hour. Now boil them in water. When tender, remove from the pan and allow to drip. Now prepare a syrup, put in the apricots in it and heat over a moderate oven. When the consistency of *morabba* is reached, remove from fire. Pack air-tight when cool.

Take 2 candied apricots daily. A fortnight's use will put new strength to the body.

DRY DATES.

Dry Dates	1 seer.
Sugar	1 seer.
Cardamom Minor	1 tollah.
Rose Water	1 tollah.

Procedure :—Wash the dry dates in cool water and then boil them in water. When

tender, ladle out and allow them to drip. Now make a syrup, put in the dry dates and cook carefully over a slow fire. Strew over the powdered cardamom minor before removing the pan from fire and mix well. Also introduce the rose water for scent. Pack in a bottle and close air-tight.

Four dry dates may be taken daily. This is a very stimulating diet and improves the constitution in a month.

JARDA ALU.

Jarda Alu (Kabuli)	1 seer.
Sugar	1 seer.

Procedure:—Select good *Kabuli jarda alu*, wash in clear cool water and allow to soak for an hour in water. Remove from water and allow to drop. Now prepare a syrup of sugar with water in a pan and bring to a boil over a slow fire. When the syrup bubbles up, pour in the *jarda alu* into it. When these are well cooked pour in a glass jar and close the mouth with pitch.

This is very invigorating. Six or seven at most may be taken daily.

DATES.

Dates (in pot)	1 seer
Sugar	as required.

Procedure:—First wash the dates clean and allow the water to drip. Now prepare a thin sugar syrup over a slow fire and carefully

cook the dates in it. When done, remove to another plate and bottle when cool.

CURRANTS.

Currants	1 seer.
Sugar	2 seers.
Curd	4 ch.
Salt	1 ch.
Lemon	1

Procedure :—First clean the currants and soak them in water in an earthenware vessel for one hour. Drain off the water and allow the adhering water on the currants to drip and dry. Next mix the curd with water and prepare as much whey as required for the currants; soak them in this whey for an hour and then boil the whole—the whey with the currants. When the whey becomes discoloured, take off the whole from the fire, throw away the whey and then wash the currants in clear water. Next add to this the lemon juice, salt and curd and mix thoroughly. Now prepare a sugar syrup, thin in consistency over a slow fire and put the currants in this and cook gently. When done remove and bottle when cool.

This preserve is dainty and nutritious and serves as an invigorating tonic to the emaciated convalescents.

PEACH.

Peach	50
Sugar	as required

Procedure :—First of all wash the peaches in clear water and make incisions on all sides, eight to ten in number, on each of these fruits. Then boil them in water and when soft, pick out with a ladle or *jhajhra* (perforated ladle) and allow to drip. Now prepare a medium sugar syrup and cook the peaches in it till the right consistency is obtained.

This preserve is extremely toothsome and nutritious.

SHADDOCK PEEL.

Shaddock Peel	1	seer
Sugar	1½	seers.
Rice Flour	5	tollahs.
Borax	1	tollah.
Cardamom Minor	½	tollah.
Rose Water	1	tollah.

Procedure :—Remove the thick coating of the shaddock and cut it out lengthwise, or along the fibre, in strips three quarters of an inch broad. The surface of the coating should then be peeled off and only the tender white portion is to be taken for subsequent treatment. Make incisions on them and allow them to soak in cool water for an hour. Then drain off the water and boil the peel in a solution of rice flour and borax in water. When well-done, ladle the peel out and wash in clear water. Next make ready a thin syrup and when boiling throw in the peel and cook with stirring. Finally stir in, when almost

done, powdered cardamom minor and rose water. Then remove and get the pieces of the peel out. Finally bottle in a wide-mouthed vessel and pour in the remaining thick syrup left in the pan. Close air-tight and seal the mouth with pitch.

COCONUT FOLLICLE.

Coconut Follicle	1	seer.
Sugar	1½	seers.
Camphor	2	ratis.

Procedure :—The coconut follicle is first cut lengthwise and allowed to soak for half an hour in cool water. Then pick out and shake off the water from the follicle. Now prepare a thin syrup over a slow fire and when boiling briskly, drop in the follicle into it and cook with constant stirring. When of the consistency of *morabbas*, add powdered camphor to it and after bottling seal the mouth with pitch.

KAMRANGA.

Kamranga	1	seer.
Sugar	2	seers.
Curd	8	ch.
Salt	4	ch.
Lime	3	tollahs.
Lemon	1	

Procedure :—First select fleshy *kamrangas*, pare and remove their veins. Allow these to soak in water in an earthen vessel for

1½ hrs. Then decant off the water and further subject the fruits to immersion under water for the same period. Strain out the fruits and wash. Then make incisions over them. Seven or eight on each of the fruits would do. Then dissolve 1½ tollahs of lime in water and allow the fruits to soak in this for 24 minutes. Again make a solution with the remaining 1½ tollahs of lime in water and put the *kamrangas* in the solution. Then strain out the fruits and have them washed clean in pure water. Then prepare whey from the curd and allow the *kamrangas* to be steeped into it. After 1½ hours the whey with the fruit is boiled and when it is discoloured it is rejected. Again boil the fruits in whey for 1½ hours and strain them out and wash in clear water. Then treat with lemon juice and a small quantity of salt and curd and incorporate well. Now have ready over a fire a thin syrup with 2 seers of sugar and water each and pour the above preparation into it and cook. When of the colour of *morabbas*, remove from fire. Bottle when cool.

SWEET POTATO.

Sweet Potato	1 seer.
Sugar	1 seer.

Procedure :—Clean the sweet potatoes and allow them to boil in water. When well-boiled, the water is drained off and the skin of the potatoes taken off with the hand.

These are then cut out in lengths of 2 inches and incisions are made on them with a fork. Now prepare a thin syrup with sugar and proportionate amount of water and when boiling drop these pieces into it. Cook with stirring and take care that the pieces are neither mashed nor broken.

The *morabba* is very delicious and at the same time wholesome. These may even serve as tiffin.

PUMPKIN.

Pumpkin	1	seer.
Sugar	1	seer.
Rice Flour	5	tollahs.
Alum	1	tollah.
Cardamom Minor	$\frac{1}{2}$	tollah.
Rose Water	1	tollah.

Procedure—The pumpkin must be of the white or *Sanchi* (deshi) variety and at least one year old. Peel and core and cut into cubes. Make incisions on them with a fork and soak in cool water for an hour. Then boil them in a solution in water of alum and rice flour. Take out and wash in clear water. Then prepare a syrup with sugar and water on a slow fire and throw into it the pumpkin cubes. Cook as in the case of *morabbas* and add powdered cardamom and rose water when removing. Bottle in a wide-mouthed glass jar and close the mouth airtight.

These pumpkin *morabbas* serve as a good cure and dietary for patients suffering from bilious disorders.

BEET.

Beet	1	seer.
Sugar	1	seer.
Cardamom Minor	$\frac{1}{2}$	tollah.
Rose Water	1	tollah.

Procedure :—First clean the beets and pare them. Make incisions with the fork and cut into pieces, 10 to 12 pieces being obtained from each. Then soak them in cool water for one hour; take them out and boil in water until quite tender. Now ladle them out and allow to drip. Next prepare a sugar syrup by the application of gentle heat and to this add the pieces of beet and cook gently over a slow oven. When the syrup gets viscous, add the powdered cardamom minor and rose water. Mix well and transfer into another vessel and bottle when cool. Seal air-tight with molten pitch. It will keep for a long time.

PALWAL.

Palwal	50
Sugar	as required.

Procedure :—Select large *palwals*, fresh and big-sized. Peel the skin off and wash in clear water and shake off the water from them. Next boil them in water until they are suffi-

ciently soft. Now ladle them out and allow to drip and make incisions with the fork. Next prepare a sugar syrup of medium consistency over a moderate fire, drop in the *pal-teals* and cook until the syrup gets viscous. Leave aside for some time in a separate vessel and then bottle.

CARROT.

Carrot	1	seer.
Sugar	1	seer.

Procedure—Scrape off the peel of the carrots and soak them in water for one hour. Take them out and make incisions all over with forks. Now put the carrots in boiling water and continue heating. When soft the carrots are ladled out and allowed to drip. The carrots are then cut into pieces and cooked in a syrup solution over a slow fire. When of the *morabba*-like consistency, remove from fire, allow to cool, pack in bottles and seal with pitch.

BETELNUT.

Betelnut	1	seer.
Sugar	1½	seers.
Lime	5	tollahs.
Borax	1	tollah.
Cardamom Minor	½	tollah.
Rose Water	1	tollah.

Procedure—Take fresh betelnuts and not dried ones and take off the outer shell.

Then prepare a solution of half the lime and borax in 5 seers of water and let the betelnuts soak in this solution for 24 hours and then remove. Then prepare a solution with the remaining half of lime stone and borax in seven seers of water. The solution is allowed to boil slowly and the betelnuts are thrown into it. Boiling is continued for 9 hours. Then the betelnuts are taken out and washed in clear water. Now make a thin syrup with sugar and water and while warm put into it the washed nuts and continue boiling. When the syrup is thick, remove from fire and incorporate rose water and powdered cardamom minor. Finally bottle air-tight and seal the mouth with pitch, if desired. This *morabba* keeps for a long time.

GINGER.

Ginger (Peeled)	1	seer.
Thick Syrup	1	seer.
Lime	5	tollahs.
Leaves of Blackberry	5	tollahs.
Cardamom Minor	1	tollah.
Rose Water	1	tollah.

Procedure :—Select fresh and good ginger and pare off the skin. Old or over-ripe ginger causes deterioration in the final product and should be carefully avoided. Incisions are to be made all over the body of the ginger with forks. Then make a solution of lime in

water in an earthen pot and let the ginger soak in this for 3 days. On the fourth day the gingers are to be picked out and washed over and over again (4 to 5 times will do) in clear water. Now have 5 tollahs of brayed leaves of blackberry and dissolve this in 2 seers of water. Then add to it the pieces of ginger and bring to a boil over a fire. When the mass has frothed up briskly for the second time, remove from fire. Wash the gingers 6 or 7 times in clear water after taking them out of the solution. Now bring to a boil a thin simple syrup and drop in the ginger pieces and stir slowly. Continue heating till the syrup assumes a thick consistency. Next remove from fire and add to this the prescribed quantity of rose water and cardamom minor and bottle carefully.

MYROBALAN.

Myrobalan	100
Sugar	as required.

Procedure:—First wash the myrobalans in clear water and then boil them thoroughly in water for some time. When they are soft, remove the pan from fire and allow the water to drain off. Then shake off the adhering water from the surface and make incisions, numbering eight to ten in each, with a fork. Now prepare a medium sugar syrup and cook the softened myrobalans in it thoroughly. Bottle when cool.

This preserve has got great medicinal properties.

EMBLIC MYROBALANS

Emblic Myrobalan	1	seer.
Sugar	2	seers.
Curd	8	ch.
Salt	1	ch.
Lime	1	tollah.
Lemon	1	

Procedure :—First soak the emblic myrobalans in an earthenware vessel full of water for about one hour. Throw away the water and repeat the process once more with fresh water. Then wash the emblic myrobalans and drain off the water. Now make incisions on all sides of the fruits and allow them to soak for half an hour in a solution made by dissolving half the lime in water. Take the myrobalans out and allow them to soak in a solution of the remaining lime with water for half an hour. Take them again out and wash in water. Now prepare a suitable quantity of whey by dissolving curd in water and soak the myrobalans in it for $1\frac{1}{2}$ hours. Now boil them in the whey and when the whey becomes discoloured throw it away and again boil the nuts in the remaining quantity of whey for $1\frac{1}{2}$ hours. Ladle them out and wash in clear water; then add a few drops of lemon juice, a quantity of salt and curd. Next prepare a

thin syrup and cook them in it over a gentle fire. Remove when of the consistency of the *morabba*. Bottle when cool.

This preserve cures acidity and indigestion and improves the appetite.

SATAMULI.

Satamuli	1 seer.
Sugar	as required.

Procedure—First clean and wash the roots in clear water and make incisions all round with the fork. Next boil water in a pan and throw the roots into it. When they are thoroughly soft, drain off the water and allow the roots to drip. Now prepare sugar syrup over a slow fire and when it is of medium consistency cook the roots in it. Remove when viscous.

This preserve is both palatable and toothsome.

SUGAR CANE.

Remove the outer hard skin from the sugarcane and cut into small cubes. Wash thoroughly with clean water. Next put in an enamel pan containing water and cook for about half an hour. Then add refined sugar equal to half the weight of the cane taken but before this add a small quantity of tamarind water or lemon juice and boil. When the fluid becomes of the consistency of syrup, remove

from fire and allow to cool. When still warm the morabba is put in wide-mouthed bottles and tightly closed.

KARELA.

Cut mature karelas into twos, remove the seeds and have them half boiled in water. Then drain off the water. Now prepare a sugar syrup of medium consistency over a moderate fire, drop in the Karelas and cook until the syrup gets viscous. Leave aside for some time in a separate vessel and then bottle.

CHAPTER VII.

MISCELLANEOUS PREPARATIONS.

KASUNDI MAKING.

KASUNDI making furnishes one of the finest means of preserving mangoes. The preparation is very much appreciated for its fine flavour and is used in cooking various fine dishes.

The method of preparation is easy but the essential point to be kept in view is scrupulous cleanliness during every stage of its preparation. If this is not observed, various germs floating in the air, on the hand and cloth may get entrance into the preparation and reduce its keeping quality. In the normal course the *kasundi* would keep for about a year and still do not require any special arrangements for preserving.

The chief preservative here is the mustard seed which should be perfectly cleaned and freed from other seeds and dirt. This should be washed thoroughly in several runs of water and dried before use. A few recipes follow:

I.

Mustard Seed	5	seers.
Mango	200	

Salt	$1\frac{1}{2}$ seers.
Mustard Oil	1 seer.

Procedure:—Winnow, clean and wash the mustard seed, spread on a piece of cloth and allow to dry in the sun. When dry, reduce to powder. Now pare and core 80 green mangoes and cut into pieces. Rub their surfaces with half of the powdered mustard and $\frac{1}{2}$ seer of salt and keep aside for 3 days. On the fourth day again pare and core 80 mangoes and besmear the pieces with the remaining powdered mustard and $\frac{1}{2}$ seer of salt and mix it with the previous preparation and keep aside for 3 days. Then pare and core 40 mangoes and mix the remaining salt and mustard oil with the pieces and incorporate this with the previous preparation.

II.

Mustard Seed	5 seers.
Mustard Rye	$\frac{1}{2}$ seer.
Mango (Green)	20 seers.
Salt	$1\frac{1}{2}$ seers.
Mustard Oil	q.s.

Procedure:—First of all the seeds should be winnowed, cleaned and washed in four to five runs of water. Then allow the seeds to drip and spread on a clean cloth in the sun. When the seeds are dry, powder and to this pour in gradually hot water and stir. Mash the powder for 30 minutes when it will be

slimy and put in the sun for 8 or 10 days. Now cut green mangoes into slices leaving off the stones within. Mix the pulpy seed with the mangoes and pound them in a rice-husker. Put in a *handi* and keep in the sun. Pound the preparation again after 2 or 3 days. Repeat the process for 2 times. Next add the mustard rye, salt and oil. Put out the product occasionally in the sun.

III.

Mustard Seed	5	seers.
Tamarind Pulp	3	seers.
Salt	1½	seers.
Mustard Oil	½	seer.

Procedure—First winnow, clean and wash the mustard and spread on a clean piece of cloth in the sun. When dry, powder. Now mash the tamarind pulp in water, strain through a fine piece of cloth and allow to dry in the sun. After 8 days it will be of the sticky consistency. In fact, put the tamarind pulp in the sun till it becomes thick and sticky. To this now add powdered mustard, salt and mustard oil and incorporate well by mashing. Now store.

CANDIED JUJUBE.

Candied jujube, or *kulchur* as it is commonly known, consists of ripe jujubes preserved in *molasses*. These are very appetising and keep long. We give below some of the pro-

cesses of making them. In each of the methods pluck off the stalks of the plums and break open each of them by pressing. The plums are salted, the proportion of salt varying with the acidity of the plums. The quantity of salt to be first added is such as to make the preparation a little saline but as the preparation ripens the brackiness gradually disappears.

I. Mash the plums and dry in the sun.

II. Mix salt and chilli powder to the plums and put in the sun till dry.

III. Mix salt, mustard powder and chilli powder and mustard oil to the plums and dry in the sun.

IV. Mash the plums; mix salt, sugar or molasses to it and put in the sun to dry. This preparation keeps for a long time, sometimes as long as eight to ten months.

AMSATTA OR MANGO PARCHMENT.

There are infinite varieties of mangoes; some cultivated, others wild. The following method of preserving fibrous mangoes in the form of parchment-like sheets is very widely used in the country. This method can also be employed in the case of certain wild mangoes which as fruits are not much relished.

The mangoes are collected when ripe and cleaned well in water. The irritating fluid present in the stalk is pressed out as completely

as possible. A clean plank or a piece of mat prepared of aloe leaves or bamboos is taken and thoroughly cleaned and dried. The mangoes are then peeled. The stone together with the edible mesocarp is pressed hard in the hand and the juice falling down is distributed evenly by moving the hand to and fro over the plank or mat.

When all the mangoes are thus pressed, the plank or mat is kept in the sun to dry. More juice is added every day, the amount depending upon the number of mangoes available each time. Each addition is done over the previous one.

The juice is completely dry in some six or seven days, and the sheet is rolled off the plank or mat from one end. It is then cut up into smaller rolls and preserved or sold. Some keep the small rolls in sugar but it is not common, the general practice being to keep the rolls as they are in jars closed air-tight.

The present method of preparation leaves much room for improvement and may not be considered very sanitary. A little modification of the method is desirable. For instance use can be made of a suitable squeezer and the stuff may be dried altogether in steam. Drying in open air with additions of fresh juice every day may cause fungus growth or infections by flies, which can be eliminated by steam drying.

The sheet is very agreeable to the taste, and so it is a very desirable stuff, if conducted on sanitary lines.

MANGO PULP.

Wash the green mangoes in water well and remove their stalks. Then have the whole mangoes boiled in water and drain off the water. When cool remove the peel by hand and get the pulp by straining through a piece of cloth. Allow the pulp to dry. In the meanwhile fry and powder the following spices, *viz.*, chilli, ajowan, parsley, fenugreek, cumin seed black and aniseed. Now put molasses in a pan and bring to a boil. When it just begins to boil add the mango pulp and again bring to a boil. Then add salt and the spices above. When thick, remove from fire and store.

CHAPTER VIII.

PRESERVED FRUITS.

A PRESERVED fruit is one which has been cooked in cane-sugar syrup until it is clear, tender, and transparent. It should keep its form and plumpness and be crisp rather than tough or soft. When finished the cells of the fruit should be filled with the flavoured syrup in place of the fruit juice.

In preserved fruits, it is aim of manufacturers to maintain colour, shape and flavour of the natural fruits.

In preserving fruits choose sound fruits gathered before maturity. These should be firm and without defects.

METHODS OF PREPARATION.

There are three stages in the preparation of preserved fruits. These are bleaching, sugaring and preserving.

The fruits are peeled and are given a number of incisions and put in cold alum water. The fruits are then transferred into a double bottomed pan having a steam jacket. These are covered over with cold water and heated slowly to boiling point. Steam is turned off from time to time and the fruits are tested if

adequately soft. The soft ones are taken out at once and put under cold water. The remaining fruits are again boiled on steam bath and removed from the stewing pan. It should however be noted that over-steaming is to be eliminated as this cause shrinkage.

When the softened fruits get cold, water is allowed to drain. These are then placed on broad flat enamelled basins. Boiling sugar syrup 20 to 25°Be is poured on the fruits, covering them up. Spread a sheet of paper on each basin and set aside the basins when cold. If the fruits are well saturated with syrup, preserve them by thickening the syrup at 27°Be.

If the fruits do not get saturated, allow the syrup to simmer and leave aside overnight. The process is repeated once a day till the syrup attains 36°Be. Finally add 15 per cent. glucose before completing the process.

For facility of work the fruits may be arranged in rows upon grids at the bottom of large crystallising tray. The temperature of the work room should not be less than 30°C. when large and closely grained crystals are formed on the fruits, the trays are inclined a little to drain off the surplus syrup.

In preserving fruit care should be taken in introducing fruit in syrup. If the fruit is dropped at once in hot syrup that is too dense, the juice of the fruit will be drawn out so

rapidly by this heavy liquid as to shrink the fruit. Then the outside surface becomes so coated with thick syrup that little of it can enter the fruit. In order to prevent this toughening and shrinking it is necessary to start the cooking of the fruit in a thin syrup.

METHOD OF COOKING.

Fruit should be cooked over a very hot fire as rapidly as possible to have the finished product sparkling bright, clear, and of a good colour. If slowly cooked, the result will be a dull, dark, unattractive product. The fruit while cooking, should be well covered with the syrup so that no top pieces will dry on the surface and shrivel before a sufficient amount of syrup has entered the pieces to plump them. Sometimes the syrup becomes thick before the fruit is sufficiently clear and tender, as may happen when a small quantity of fruit is cooked in a large pan. In this case the water in the syrup evaporates more quickly on account of the large surface exposed with the consequence that the syrup gets unusually concentrated. In that case the syrup should be thinned by adding a small amount of water.

Commence the process of preserving fruit in a thin syrup, cook rapidly until pieces are clear and allow them to stand immersed in the syrup overnight. This causes more of the syrup to permeate the fruit and plump

it. If this process is carried on gradually, the fruit may be completely saturated with syrup without shrinking. The finished product should keep its original form and should be plump, mellow, and clear.

Usually three-fourths pound of sugar for each pound of fruit is allowed for preserves. Firm fruits like pears, apples, mangoes, papaw, are first cooked in boiling water until tender, and then added to the syrup.

When acid fruits are added to the syrup some of the sugar is changed to a form which will not readily crystallise, and for this reason the syrup may be made heavier without danger of crystallisation.

Since cooking long injures the colour and flavour of fruits, it is desirable to cook delicate fruits for as short a period as possible. After cooking it is submitted to cooling process.

METHOD OF COOLING.

Cooling rapidly after cooking gives the preserves a better colour and flavour than can be secured when they are packed hot. Keeping immersed in the syrup after cooking helps to plump the fruit. Shallow enamelled trays are desirable for cooling. Running cold water beneath the trays will help to cool them rapidly. Tin utensils should not be used, because the fruit juices will be discoloured in it.

PACKING.

After cooling the preserved fruits are packed. Bring the syrup in which they have been standing to boiling, strain, test, and, if of proper density, pour over the packed preserves, and paddle the packed jars to remove all air bubbles. If not of the right consistency for packing, the syrup must be concentrated to proper density by boiling it. A well packed jar will contain fruits or pieces of fruit of uniform size for filling the space within the jars. These should be arranged in layers in such a way as to give the entire pack a symmetrical appearance.

SEALING.

To seal properly and to insure safety from mould, it is necessary to process all preserves after packing them into the sterilised jars. This processing may be done in a water-bath by heat below or at the boiling temperature, depending upon the kind of products packed and upon the length of the time the heat is applied. Since preserves contain so much sugar, which act as preservative, it is only necessary to process against moulds. This may be accomplished by placing the filled jars in a water-bath, heating it to a temperature of 180° to 190°F, and maintaining that temperature for about thirty minutes. Then allow the jars to cool and afterwards seal.

RECIPES.

PINEAPPLE PRESERVES.

Pineapple	1 lb.
Sugar	$\frac{1}{4}$ lb.

Procedure:—Peel, core, and slice the fruit, place alternate layers of sugar and fruit in a bowl and allow to stand overnight. Next morning drain off the syrup and boil it for ten minutes, add the fruit and continue cooking for fifteen minutes, remove from the fire, skim and pack into jars, heat pint jars at 212°F for fifteen minutes in a water-bath before sealing.

MANGO PRESERVES.

Prepared Mango	2 lbs.
Sugar	2 lbs.
Water	2 lbs.

Procedure:—Peel and cut the fruits in proper sizes. Dissolve the sugar in water and boil. Then add the mango pieces and boil the whole for half an hour or until the fruit is cooked and the syrup is thickened heavily. Then remove from the fire and allow it to cool; then pour into jars and seal.

This is what is known as morabba to the housewife. Peaches, pears and apples, etc. may be preserved in this way.

WATER-MELON PRESERVES.

Very often the rind of the water-melon is thrown away, but it may be used in making a very delicious preserve.

Water-melon rind	1	lb.
Sugar	1	lb.
Lemon	1	
Lime	1	oz.
Water	2	quarts.

Procedure—Cut the rind into the form of small cubes, remove peel and all pink part, and weigh. Soak over-night in lime water, one ounce of lime to two quarts of water. The following morning allow the rind to stand for two hours in clear water. Drain well, then drop into boiling water and boil rapidly for ten minutes. Drain again and add gradually to the syrup (made by boiling together two cupfuls of sugar and one quart of water). Add to this the juice of one lemon. Cook until the melon is tender and transparent. Allow to stand covered with cold syrup, arrange the pieces attractively in the jars. Cover with the syrup, then process and seal.

STAR APPLE & ROSE APPLE PRESERVES.

Procedure—To every pound of fruit add $2\frac{1}{2}$ pounds of sugar and 2 pounds of water. Boil until the material becomes a heavy preserve. It is better to prick the star apple with a little pointed bamboo strip.

BANANA PRESERVES.

Bananas may be preserved like figs, raisins or other dried fruits. To do this they are allowed to ripen thoroughly in the house, in which condition the skin is very easily removed. They are then cut lengthwise with a bamboo or bone knife into four sections and dried on plantain leaves in the sun. In course of a day or two the fruit becomes covered with white sugary powder deposited from its own juices. In this condition they will keep for years.

GINGER PRESERVES.

Put the green ginger regularly, every night and morning for a fortnight into fresh boiling water. Remove the outer skin with a sharp knife, boil it in water until it is quite soft and then cut it into thin slices.

Now put these slices into concentrated syrup and boil until they are transparent. Finally the finished product is kept in well-stoppered bottle.

Another method of preserving ginger is as follows:—

Ginger (in coarse powder) 3 oz.

Boiling water 1 $\frac{1}{4}$ pint.

Macerate the ginger with the boiling water in a warm place for 2 hours, strain and then add sugar, 10 lbs. and boil to form a thick paste.

TOMATO PRESERVES.

Tomatoes	2 lbs.
Sugar	2 lbs.
Water	1½ lbs.
Cinnamon	q.s. (for flavour).

Procedure :—Boil together sugar, cinnamon and water for fifteen minutes, add gradually the tomatoes and cook gently until the fruit becomes bright and clear, stirring occasionally. After cooking pour into the trays, stand overnight, pack the tomatoes cold, strain the syrup over there. Process as usual.

STRAWBERRY PRESERVES.

Berries	2 lbs.
Berry juice	½ cup.
Refined sugar	1½ lbs.

Procedure :—Wash, and stem the strawberries. Make syrup of the sugar and juice and add the berries. Cook to 222°F or until the syrup is very thick. Cook quickly, pack into sterilised jars and seal. More of the natural flavour is retained by using this method, and no syrup will be left over, which means a saving in sugar.



CHAPTER IX.

JELLY MAKING.

JELLIES do not strictly belong to the category of Indian pickles, chutneys and morabbas. Nevertheless a treatment of the processes of manufacture of these delicacies will not be found out of place in this book, specially because demand for these stuffs is continually increasing and there is enough scope for manufacturers in building up profitable business in this line.

Ultimate success in jelly making lies in the fact that the juice must contain the necessary substances that are wanted for jelly making i.e., pectin and acid. It is the pectin that causes the jelly to set. The juice should also contain a certain amount of solid matter and at least 5 per cent acid.

The manufacture consists in breaking up the ripe fruit carefully and then packing the pulp in linen bags, which are subjected to the power of a screw press, so as to express out the juice as much as possible. The liquid thus pressed out is mixed with sufficient quantity of sugar. Some juices need so much sugar to thicken them that the taste of the fruit is also entirely concealed. In this case a

small quantity of pectin is added so as to avoid spoiling the taste with too much sugar.

Most fruits contain more or less acid, but pectin does not exist in all fruits in sufficient quantity to make jelly. It is more abundant in slightly under-ripe fruit than in that which is fully ripe. As the fruit ripens, it becomes sweeter and it is believed that pectin, which is a carbo-hydrate, is changed by heat of the sun into a fruit sugar. Therefore, fruits which are not over-ripe are most suitable for jelly making. Apples, currants, gooseberries, grapes, and oranges are fruits most commonly used for jelly making. Those fruits which lack either acid or pectin may be mixed with other fruits, so as to make a mixed jelly by supplying the necessary ingredients to a fruit juice intended for jelly making.

Jellies differ from jams simply in keeping the shape of a mould after they are removed from it, and forming a coherent trembling mass like a gelatine jelly.

Jellies are made with or without gelatine in the same manner as jam. These are cooked to a semi-jelly state and then dropped into starch moulds.

EXTRACTING THE JUICE.

Before the juice is pressed out the fruit should be washed thoroughly. Special care must be taken in the washing of small fruits. Cut or crush the fruits and weigh them. If

the fruits are soft and juicy water should not be added but if they are tough and dry enough sufficient water should be added to cover them in the boiler.

The pectin held in the tissues comes out with the juice when the cut or crushed material is boiled. Small fruits like grapes and berries do not require any water when boiled. Care must be taken not to add too much water because in that case it will dilute the juice.

The crushed material should be boiled until the fruits become tender. Generally soft fruits require a short, and tough fruits a long boiling. For example, 10 to 15 minutes are quite sufficient for mangoes and apples whereas about one hour is required for oranges and lemons. The fruit should not be boiled long, as it develops a very disagreeable cooked taste.

When the fruit becomes tender, the liquid may be squeezed by piece of thin cloth which gives a clear juice. But to get the most juice and pectin, it is better to press out the juice from the cut fruits by a small hand press and then use a bag filter to clear the juice from pulps. The clearer the juice, the brighter, and the more transparent the jelly it will make.

TESTING THE JUICE FOR PECTIN.

In jelly making it is imperative to ascertain the amount of pectin present in the

juice. This is determined by undergoing the following test:—

Take a teaspoonful of juice in a glass and add to it a teaspoonful of denatured alcohol and stir slowly. If there be enough pectin in the juice, a gelatinous mass will be formed; but if the juice is poor in pectin, it will give a few small flaky pieces of sediment. Such a test should be made before the jelly is tried because if the juice is poor in pectin, jelly making will be a failure.

TESTING THE JUICE FOR ACID.

Again, some fruits do not contain enough acid to make a good jelly and sugar crystallises after a time. Hence the acidity of a fruit juice should also be tested before going to make the jelly. The following simple method may be adopted:—

Take a ripe lemon and squeeze out the juice. Take one teaspoonful of juice and dilute it 10 times in a glass and add one half teaspoonful of sugar. Stir well. Compare the acidity of this dilute lemon juice and that of the juice of the fruit intended for jelly making by taste. If the fruit juice does not contain as much acid as the dilute lemon juice, it is deficient in acid and in that case some acid from other sources must be introduced otherwise the jelly will not be perfect.

ADDITION OF SUGAR.

The quantity of sugar to be added to the juice depends on the presence of pectin and acid in the juice. When the fruit contains sufficient acid and pectin, it is necessary to add 1 to $1\frac{1}{2}$ times the amount of sugar, but when the juice contains less pectin but sufficient acid, equal amount of sugar should be added. In other words, a juice deficient in pectin will require a less amount of sugar, because the pectin concentrates due to the evaporation of water by boiling. Boiling must be continued until the liquid contains 60 per cent. sugar. At that concentration of sugar, with enough pectin and acid, a first-class jelly will form possessing good keeping power.

COOKING THE JELLY.

The material should be boiled in a shallow pot on a good flame as rapidly as possible. The object of cooking rapidly is to keep the jelly bright and clear. The juice should be boiled down until it will fall from the spoon to a jelly when cold. When there is sufficient pectin it will fall to a jelly when the liquid concentrates to 60 per cent. sugar.

To determine the jelling point a small amount of juice is taken with a spoon and on cooling it is allowed to drop from the side of the spoon. At first it will just run off as syrup; then, as it cooks, the drops will become

heavier, and when the drops run together and slide off in a flake or sheet from the side of the spoon, leaving the edge clean, the jelly is finished and should be removed from the fire at once. Skimming while cooking the juice is wasteful. Care should be taken not to break the scum while testing the juice for the jelly stage. After a good jelly test is obtained and the vessel is removed from the fire, the scum may be removed all at one time before pouring the jelly into the containers. The jellying point may be determined by dipping a thermometer in the boiling liquid. When the temperature comes up to 223° F., it is sure that the liquid has come to the jellying point. If the boiling liquid is removed from the fire at a less temperature, it will not form a jelly but will form a sumpy liquid. As soon as this stage has been arrived, the vessel should be removed from the fire and skimmed, then the jelly should be poured into containers, and set aside to cool. It is very necessary at this point to keep a cool head and work rapidly so that the jelly will not have time to cool in the pan. When quite cold a piece of parchment paper is put on the top of the jelly before the cork or stopper is put on.

If the jelly contains 65 per cent syrup it will not mould, but when the percentage of sugar is less it will. For this reason it is better to sterilize the containers after they

are filled up. Glass jars should be immersed hot in a pan containing hot water and sterilized for 10 minutes with the cover on. Tin cans should be sterilized, after they are sealed, for ten minutes in boiling water. Such jellies are well suited for marketing purposes and keep very well for a long time. If desired, the juice for jelly making may be bottled and sterilised to be used later when time and opportunity permits of the operation.

The slow heating, to give the pectose time to act, is essential, and is best done on a water bath. The heating is continued until a few drops, allowed to drop from a spatula on to a cold stone, gelatinise quickly. If the mass is not gelatinised, more sugar must be added, stirring it in a little at a time.

All temptations to hurry matters by using more heat must be absolutely resisted, for fear of charring the mass, which ruins the whole beyond repair, by forming caramel.

The jelly thus obtained is poured hot either into moulds or into shallow pans. In the latter case it is further cut up with a wire after it has set. The pans or moulds should be warmed before the jelly is poured in, so that the jelly may set slowly.

Fruit jellies are very hygroscopic, and hence soon absorb enough water from the air to become sticky.

GUAVA JELLY.

Boil the fruits and press out the juice. Determine the quantity of sugar to be added by the use of the alcohol test given above. Then bring the juice to boil and add the calculated amount of sugar. Cook rapidly until the jellying point is reached. Next remove from the fire, skim, and pour into hot glasses, which have been boiled previously. Finally, cover the jelly when cold with melted paraffin and label and store away in a cool place.

Apples, karamcha, black berry, etc., may be made in the same way.

ORANGE JELLY.

Slice the oranges with rind and with a little water sufficient to cover the fruits for about thirty minutes. Then press out the juice while still hot by means of a hand press. Next determine the amount of sugar required and put into the boiling juice. The boiling is continued until the jellying point is reached; then remove from the fire and pour into the containers. When cold, cover the top of the vessels with melted paraffin.

APPLE JELLY.

Take any quantity of sound common apples, those with red skins make the brightest coloured jelly; wash carefully, but do not peel

them; fill a preserving-pan with the apples, and just cover them with water; boil till they are all in a pulp, then strain it through a hair sieve. To every pint of juice add one pound of white sugar, and a little essence of lemon; boil the whole till it is perfectly clear, and jellies, when cold; it ought to turn out of a shape quite stiff and clear.

Apples, 10 lbs.; water 10 pt.; to each pint of liquid obtained from these allow 1 lb. of sugar and the juice of 2 lemons. Rub the apples well with a dry cloth, but do not pare them. Cut them into quarters, remove the cores, and put them into a preserving pan with the sugar. Simmer until perfectly soft, but not broken, then strain off the liquid without squeezing the pulp. If not clear pass through a jelly bag or clean dry cloth until it becomes so. Add sugar and lemon juice in the proportion stated above, and simmer gently until a little poured on a cold plate, almost immediately begins to stiffen. Pour into pots or glasses, cover closely, and store in a cool, dry place. It requires from 25 to 30 minutes, after straining. The apple pulp may be sweetened, with ginger or cinnamon, and made into jelly.

GRAPE JELLY.

Take some of the best grapes, strip them from the stalks, stir them with a wooden spoon over a gentle fire till they burst; strain

off the juice (without pressing) through a jelly-bag or thick muslin; weigh the juice and boil it rapidly for twenty minutes; then take it from the fire, and to each pound of juice add fourteen ounces of good sugar and boil quickly for a quarter of an hour, stirring it constantly, and skimming it carefully. It will be quite clear, and of a pale rose colour.

CURRENT JELLY.

Put red currants into a clean preserving pan, and stir them gently over a clear fire until the juice flows from them freely; then turn them into a fine sieve, and let them drain well, but without pressure. Pass the juice through a folded muslin, or a jelly bag; weigh it, and then boil it fast for a quarter of an hour; add for each pound, eight ounces of sugar, coarsely powdered; stir this to it, off the fire, until it is dissolved; give the jelly eight minutes more of quick boiling, and pour it out. It will be firm, and of excellent colour and flavour. Be sure to clear off the scum as it rises, both before and after the sugar is put in, or the preserve will not be clear.

The simplest method of making currant jelly is perhaps the following:—Free the currants from leaves and large stems, put them in the preserving kettle, crush a few with a wooden vegetable masher or spoon, and heat

slowly, stirring frequently. When the currants are hot, crush them with the vegetable masher. Put a hair sieve or strainer over a large bowl; over this spread a double square of cheese cloth. Turn the crushed fruit and juice into the cheese cloth and let it drain as long as it drips, but do not use pressure. To hasten the process take the corners of the straining cloth firmly in the hands and lift from the sieve; move the contents by raising one side of the cloth and then the other. After this put the cloth over another bowl, twist the ends together, and press out as much juice as possible. This juice may be used to make a second quality of jelly. The clear juice may be made into jelly at once, or it may be strained through a flannel bag. In any case, the method of making the jelly is the same. Measure the juice, and put it in a clean preserving kettle. For every pint of juice add 1 pt. of granulated sugar. Stir until the sugar is dissolved, then place over the fire; watch closely, and when it boils up draw it back and skim; put over the fire again and boil and skim once more; boil and skim a third time, then pour into hot glasses taken from the pan of water on the stove, and set on a board. Place the board near a sunny window in a room where there is no dust. It is a great protection and advantage to have sheets of glass to lay on top of the tumblers.

As soon as the jelly is set, cover by one of the three methods given.

II.

Use 5 gallons of currant juice, 30 pounds of granulated sugar. Put the currant juice and sugar in a kettle, and cook to 28°Be , if the jelly is made from fresh juice. If made from jug juice early in the season, cook to 30°Be , and if made from old jug juice, it may be necessary to cook to 32°Be .

BLACKBERRY JELLY.

Use 5 gallons of blackberry juice, 25 lbs. of granulated sugar. Cook to 34°Be .

GRAPE JELLY.

Prepare grape jelly in the same way as currant. Cook to 32°Be . Do not use over-ripe grapes for making jelly juice.

RASPBERRY JELLY.

Raspberry pulp, Apricot pulp or Apple pulp	3 lbs.
Sugar	3 ,,

PROCEDURE:—Wash the fruits and stew in a steam pan. Remove the peel, pips, stalks, stones, etc., and feed in pulping machines. Boil down in a semi-jelly or semi-viscous consistency. Over-boiling should be avoided by all means. Temperature should not be allowed

to rise above 230°F. This is then to be cast in starch.

STRAWBERRY JELLY.

Crystal Sugar	14	lbs.
Glucose	6	"
Gelatine (dry)	2	"
Water	3	pints.
Strawberry fruit pulp		q.s.
Strawberry Essence		q.s.
Colouring		q.s.

PROCEDURE:—Gelatine is immersed under water and allowed to soak for 2 hours. Now sugar is dissolved in water and brought to a boil to 240°F. Finally add fruit pulp, essence, glucose and colouring matter. When of semi-jelly consistency cast in warm starch and allow to set in a moderately warm room. Finally clean and remove the adhering starch and crystallise in sugar boiled to 225°F.

BANANA JELLY.

Peel the ripe fruits, cut them into slices, add 1 lb. of water to each pound of slices and boil for about one hour until the mixture is soft enough to be strained through calico. After straining add one pound of sugar and sufficient citric or tartaric acid, or simply lime juice, to give the mixture an agreeable acid taste. If citric or tartaric acid is used it should be dissolved in water before it is added to the fruit pulp. The boiling should then be repeat-

ed for at least another hour. Finally the jelly is bottled up when fairly hot, the bottles used being fumigated inside with a taper or burning sulphur introduced immediately before the warm jelly is put in. A piece of parchment paper is put on after the jelly has become quite cool. Banana-meal may be prepared from the refuse stuff.

PACKING.

The jars in which the jellies are stored up should be clean washed and then sterilised by being boiled for some time in hot water. For facility, the whole may not be locked up in single jar so that each time the article is wanted the whole mass does not run the risk of contamination. When taking out the jelly from the jar for use, always employ a wooden spoon and by no means have those touched by hand. Above all scrupulous cleanliness is the essential factor in jam making. Close the jars well and if necessary seal up with pitch. Wide-mouthed glass jars with screw tops or wire clamping arrangements may be found useful.

Jellies are packed in suitable bottles preferably wide-mouthed. Then the whole is to be paddled to remove air bubbles and finally the mouth of the container is closed and sealed.

Bottles and corks should be invariably sterilised before packing. This is a great pre-

ventive measure even when complicated processes cannot be carried out.

PROCESSING.

Over and above this, the bottles are to be processed, if safety from mould is to be insured. Processing against moulding consists in steeping the bottles after filling air on a heated water bath, the time of dipping depending upon the kind of produce packed. For the purpose water in a bath is heated from below and raised to the temperature of 180°F to 190°F, the temperature at which water simmers; maintain the temperature of water at this level. Jams processed at this temperature keep a better texture and flavour than those processed at a lower temperature. The usual duration of processing lasts from 15 to 30 minutes. It should be remembered that when jars with glass tops and screw caps or wire clamps are used, the pressure on the top of the caps is not withdrawn till the jars are entirely cold. The mouth should be sealed when bottles are cold.

CHAPTER X.

JAM MAKING.

JAM means a fruit-pulp preserved with sugar. When a fruit-juice is heated to the boil very gradually, we find that it undergoes a particular change, which is specially well marked with raspberry juice. The liquid gradually thickens, and may do so to such an extent as to gelatinise on cooling. The product thus obtained must be utilised as a jam or a fruit jelly.

To make jam the fruit is bruised or grated. Soft fruits, such as mulberries, strawberries, etc., are best ground in a thick enamelled pot with a wooden pestle. Apples, quinces, and firm-fleshed fruit generally, are rubbed up with a grater. After this, the grated fruits are treated with sufficient amount of sugar, which of course, varies according to the kind of fruits taken. Very sour fruits require more sugar than sweeter varieties. The sugar is mixed with the fruit pulp, which has been sieved either in the dry state or in a paste with a little hot water. In any case it must be thoroughly mixed. The jam is next kept at a temperature of from 30° to 40°C for a long time in an iron pan, till it has thickened.

If this heating is done over an open fire, the mass must be stirred without cessation the whole time the pan is being heated, or it is certain to burn. The least occurrence of this mishap darkens the jam and spoils its taste.

When the jam has thickened, its temperature is raised to 100°C to kill the ferments. It is then poured hot into the jars in which it is to be sold and these are at once covered down. Glass vessels should be heated in boiling water after they are filled and tied down.

JAM BOILING.

In all jam boiling the immediate indicators of the end-point are a thermometer of special pattern, and a longhandled, flat spoon or "skimmer" made of silver, copper or aluminium. When the thermometer has risen to about 218-200°F, the jam boiler begins to test for jellying properties by dipping the skimmer into the boiling mass, and observing the manner in which the jam or jelly falls from the edge. At first it merely runs off in a stream, showing that the end-point has not been reached. Later, however, it begins to thicken, and finally it shows a tendency to get by "flaking off" or breaking off clean. This usually occurs somewhere between 220° and 223°F, according to the barometric pressure and the nature of the product which is being boiled, and some experience is required in judging the

exact moment for cutting off the steam, and emptying the pan so as to obtain the optimum gel. The whole process should occupy about 10 to 30 minutes.

The thermometer and "skimmer" should be used continually and the jam tested at frequent interval in order that any variation in the materials, negligence on the part of the jam boiler, or other sources of trouble, may be detected and amended. The boiling is carried out in jacketed pans heated by steam under a pressure of 60-80 lbs. These pans are usually made of copper, in which case it is good practice to have them heavily silvered inside; nickel, aluminium and stainless steel pans are also used.

Since prolonged heating tends to destroy the setting power of the pectin, it is necessary to adjust the recipe, and the steam pressure in accordance with this principle. Overboiling results in stiff tacky products while under-boiling in poor keeping quality. The material is caused to boil as rapidly as possible, frothing being prevented by the addition of a little butter or other oil, and the water to be evaporated is cut down to a minimum. It is a good practice, especially if the boils are large, or if syrup is used instead of sugar, to add the pectin in concentrated form.

Ripe fruits should be boiled for as short a time as possible. Addition of glucose or

citric acid for the prevention of crystallization is unnecessary as fruit acids present in the fruits are quite sufficient for the purpose.

Generally speaking, boiling need not be prolonged more than is actually necessary to cook and sterilise the fruit, to liberate the pectin, to ensure the thorough mixing and dissolution of the soluble ingredients, and to bring about the necessary degree of inversion of the sugar. The latter is a function of duration of boiling, and acidity; if too low, it may be corrected by the addition of citric or tartaric acid. As soon as the boiling is complete, the steam is cut off from the pan, and the jam or jelly is emptied by tilting into a water-cooled trough, where it is stirred gently until the solids no longer float. It is then filled into jars either mechanically or by hand, the surface is covered with a thin disc of waxed tissue paper, and the jam is allowed to cool. If the output is large, it will be necessary to cool the filled jars artificially in a cooling tunnel or chamber through which air is drawn by fans. When cool, the jars pass into the stores, where they are stocked.

A summary of the method of jam making is given below:—

Wash the fruits and peel them. Then weigh and cut them in pieces, if necessary. Cook with a little water until they are soft. After this mash with a mallet or spoon and

strain in a bamboo strainer. Now add an equal quantity of sugar to fruits and cook for 5 to 10 minutes. Pour in hot bottles or glasses and cover with melted praffin wax when cold. Lastly put on label and store in a dry cool place.

BLACKBERRY JAM.

Use 60 lbs. of blackberries, 100 lbs. of sugar, and 4 gallons of water. Cook the blackberries in the water 10 to 15 minutes, then add the sugar and cook to 220°F. Process for 25 minutes at 180°F. Do not attempt to cook blackberries in syrup. In this case they will be coated with the syrup and become very hard.

II.

Gather the fruit in dry weather; allow half a pound of good brown sugar to every pound of fruit; boil the whole together gently for an hour, or till the blackberries are soft, stirring and mashing them well. Preserve it like any other jam, and it will be found very useful in families, particularly for children—regulating their bowels.

APPLE JAM.

To each pound of fruit, weighed after being pared, cored and sliced, allow $\frac{3}{4}$ lb. of preserving sugar, the finely grated rind of 1 lemon and the juice of $\frac{1}{2}$ lemon. Choose firm,

sound apples of the same kind; peel, core, and cut them into thick slices. Barely cover the bottom of a large stewjar with cold water, add a good layer of sliced apples, cover thickly with sugar, and sprinkle with lemon rind and lemon juice. Repeat until all the materials are used, cover the jar closely, place it on the stove or in a moderate oven, in a tin half full of boiling water, and stew gently until the apples are tender. If the preparation appears rather dry it may at once be put into the pots; if not, the lid must be removed, the stewjar taken out of the water and placed on the stove, and the contents boiled and stirred until the greater part of the moisture has evaporated. It requires from $2\frac{1}{2}$ to 3 hours.

II.

The apples, which should be ripe, and of the best eating sort, being pared and quartered, are put into a pan with just water to cover them, and boiled until they can be reduced to a mash. Then for 1 lb. of the pared apples, 1 lb. of sifted sugar is sprinkled over the boiling mixture. Boil and stir it well, until reduced to a jam. Then put it into pots.

MANGO JAM.

Select fleshy half-ripe mangoes, peel and slice and to every pound of fruit add one pound of refined sugar. Moisten the sugar with a

little water, set up to boil and when the sugar has dissolved add the sliced fruit and cook till the syrup thickens and the fruit is quite tender and broken. When nearly cold, the finished jam is put in wide-mouthed glass bottles, which in the meantime have been sterilized by placing them in boiling water.

RED Currant JAM.

Take red currants. Remove the stalks, put the fruit into a preserving pan, and to each pound allow $\frac{3}{4}$ lb. of preserving sugar. Stir occasionally until the fruit is nearly boiling, and afterward almost continuously. Boil gently for about 40 minutes, or until a little will set when poured on to a cold plate. Turn into pots, cover closely, and store in a cool, dry place. It requires about 1 hour.

APRICOT OR PLUM JAM.

After taking away the stones from the apricots, and cutting out any blemishes they may have, put them over a slow fire, in a clean stew-pan, with half a pint of water; when scalded, rub them through a sieve; to every pound of pulp put one pound of sifted refined sugar, put it into a preserving-pan over a brisk fire, and when it boils skim it well, and throw in the kernels of the apricots and half an ounce of bitter almonds, blanched; boil it a quarter of an hour and stir it gently all the time;

remove it from the fire, fill it into bottles, and cover.

CURRENT JAM.

Strip the currants from the stalks, and put them into the preserving-pan, with three quarters of a pound of sugar to each pound of fruit; add the sugar after the fruit has boiled a few minutes; boil together, mashing the fruit with a wooden spoon, and taking off all the scum; boil all gently for half an hour, then fill the jars.

PINEAPPLE JAM.

Peel the pineapples and chop them up (discarding cores); weigh the fruit, and allow $1\frac{1}{2}$ lbs. sugar to 1 lb. fruit; boil until of the desired consistency. A piece of ginger added will improve the flavour.

STRAWBERRY JAM.

Put an equal weight of good ripe scarlet strawberries and sugar into a preserving-pan; let them boil very slowly till the sugar is all dissolved. The fruit should be kept as much unbroken as possible, therefore stir very carefully; remove the scum as it rises; the addition of half a pint of white currant juice to every four pounds of fruit is a great improvement, strawberry jam being rather a luscious preserve. Boil from forty minutes to an hour, until the fruit looks clear.

BEETROOT JAM.

Take 3 lbs. of beetroots, wash them well, and cook them in boiling water with a pinch of salt and juice of a lemon. When nearly ready, pour the water away, put the beetroots, and shred them finely. Dissolve 2 lbs. of sugar, add the shredded beetroots, bring to the boil slowly. Then cook for quarter of an hour, add 1 oz. of ground ginger, 2 oz. of blanched almonds, and boil until the whole mixture jellies. Put in warm jars. This jam will keep for several months.

CHAPTER XI.

MARMALADE MAKING.

MARMALADES, when well made always show a jelly-like appearance thus denoting that there must be some pectin present in the fruit which is used. Marmalades and jams should be cooked very rapidly over hot fire in order to retain the best flavour and bright colour. These are the most attractive features of the finished products.

Marmalade is generally made from oranges. The principle is just the same as in jelly making—except that the rind is used in it more or less because the pectin that causes the jellying effect in the marmalade is present in the white inner skin of oranges. The acidity of marmalade should by no means be less than 5 per cent.

PROCESS OF MARMALADE MAKING.

Wash the oranges in a basin of hot water and remove the peel and seeds, cutting one-half of the peel into very thin strips, and boil till they are very soft. As all the rind is not required, the balance may be boiled separately for an hour with a little water sufficient to cover them. The juice is then pressed out and kept in bottles so as to supply pectin

whenever required. Now press out the juice from the pulp and add to it some juice from the rind as prepared above. But the usual course adopted by the manufacturers is to cut the oranges and boil with the rind and then press as in jelly making. Next add equal amount of sugar to the juice and also add the chips and boil rapidly to the jellying point.

If marmalade slicer is obtained, the fruits can be sliced with rind very thin and then boiled for an hour till the rind gets soft. Add sugar and follow the process as in jelly making. If oranges are not acid, lemon juice must be added to supply the required amount of acidity.

APRICOT MARMALADE.

Take off the peel of some large ripe apricots, cut them in two, and remove the stones; weigh the fruit and lay it on dishes; to every pound of apricots put one pound of finely powdered loaf sugar, strew it over the fruit, and let it lie for one night; then let the whole boil very gently, and as each piece of apricot appears clear take it out and lay it in a jar; skim off any scum that may arise on the syrup, and when all the fruit is done pour the syrup over it in the jars.

RED Currant MARMALADE.

Squeeze some ripe currants through a coarse muslin; to every pint of juice put a

pound of loaf sugar; boil it very well; when nearly boiled to a jelly, have some bunches of large white currants nicely picked, throw them in, and boil five minutes: it should turn out stiff and transparent.

ORANGE MARMALADE.

Choose the largest oranges, as they usually contain the greatest quantity of juice, and choose them with clear skins, as the skins form the largest part of the marmalade. Weigh the oranges, and weigh also an equal quantity of loaf sugar. Skin the oranges, dividing the skins into quarters, and put them into a preserving pan; cover them well with water, and set them on the fire to boil; in the meantime prepare the oranges, divide them into gores, then scrape with a teaspoon all the pulp from the white skin; or, instead of skinning the oranges, cut a hole in the orange and scoop out the pulp; remove carefully all the pips, which will escape observation unless they are very minutely examined. Have a large basin near you with some cold water in it to throw the pips and skins into—a pint is sufficient for a dozen oranges. A great deal of glutinous matter adheres to them, which, when strained through a sieve, should be boiled with the other parts. When the skins have boiled till they are sufficiently tender to admit of a fork being stuck into them, strain

them; some of which may be boiled with the other parts; scrape clean all the pith, or inside, from them; lay them in folds, and cut them into thin slices of about an inch long. Clarify your sugar; then throw your skins and pulp into it, stir it well, and let it boil about half an hour. If the sugar is broken into small pieces, and boiled with the fruit, it will answer the purpose of clarifying, but it must be well skimmed when it boils.

APPLE MARMALADE.

Peel and core two pounds sub-acid apples and put them in an enamelled saucepan with one pint of sweet cider, or half a pint of pure wine, and one pound of crushed sugar, and cook them by a gentle heat for three hours, or longer, until the fruit is very soft, and then squeeze it first through a colander and then through a sieve. If not sufficiently sweet, add powdered sugar to suit your taste, and put away in jars made air-tight by a piece of wet bladder.

II.

Apples, 2 lbs.; sugar, 4 oz.; butter, 1 oz. Peel, core and quarter the apples, place them in a jar with the sugar and butter, and stand the jar in a saucepan containing boiling water, or, when more convenient, in an oven. Cook until soft, pass through a fine sieve, and use

for filling turnovers, or other kinds of pastry. It requires $1\frac{1}{2}$ hours.

LEMON MARMALADE.

Place the lemons in a preserving pan, cover them with cold water, and boil them gently for 2 hours, during which time the water must be drained off and replaced by fresh boiling water at least 3 times. Let them cool slightly, slice thinly, remove all the pips, and weigh the fruit. To each pound allow 2 lbs. of loaf sugar and 1 pt. of the water the lemons which were last boiled in, and boil these together until a thin syrup is obtained. Then add the prepared fruit, and boil until the marmalade jellies when tested on a cold plate. Cover closely with paper brushed over on both sides with white of egg, and store in a cool, dry place. It requires from 3 to $3\frac{1}{2}$ hours.

PINEAPPLE MARMALADE.

To each pound of pineapple pulp add 14 oz. of loaf sugar. Peel, core and slice pineapples, and either pound or grate them finely, preferably the latter. Boil the pulp and sugar together until thick and clear, then turn into pots, cover first with brandied paper, and afterward with parchment. Store in a cool, dry place. It requires 2 to 3 hours.

GRAPE MARMALADE.

Remove the stalks, put the fruit into a preserving pan, barely cover with boiling

water, and simmer gently until perfectly soft, but the grapes must not be allowed to break. Drain well, pass through a fine sieve, and return the pulp to the pan. To each pint add from 12 to 16 oz. of sugar, according to the degree of sweetness required and boil from 20 to 25 minutes, reckoning from the time the entire mass reaches boiling point. Turn into jars, cover at once with paper brushed over on both sides with white of egg, and store in a cool, dry place. It requires about 1 hour.

CHAPTER XII.

PRESERVATION.

PRESERVATION of the pickles, *chutneys* and *morabbas* is to be attended to with care. The main object underlying pickling, etc., is the preservation of the stuff and if this cannot be secured, all the efforts are in vain.

PICKLES.

While salt, sugar, vinegar and spices have great preservative qualities in the preparation of pickles and *chutneys*, these do not prevent the formation of moulds on the surface of these foods. The jars in which the pickles, etc. should be stored up should be clean washed and then sterilised by being boiled for some time in hot water. Putting to the sun occasionally is a great preventive to moulding. For facility, the whole may not be locked up in a single jar so that each time the article is wanted the whole mass does not run the risk of contamination. See that in each jar vinegar or mustard oil is sufficient to cover up the pickles totally. While taking out the pickles from the jar for use, always employ a wooden spoon and by no means have those touched by hand. Above all, scrupulous clean-

liness is the factor which helps preservation—cleanliness in manipulations and packing. Close the jars well and sometimes seal up with pitch. Wide-mouthed glass jars with screw tops or wire clamping arrangements may be found helpful.

CHUTNEYS.

In the case of preserving *chutneys*, much of the remarks made in connection with the preservation of pickles hold good. The special directions for packing are also embodied in the instruction for working the recipes.

MORABBAS.

In preserving the *morabbas* greatest caution is to be taken. The *morabbas*, as remarked already, should be packed cold. Finished preserves are packed in a row or layer for economy of space in suitable bottles preferably wide-mouthed and are covered over with thick juice that remains after the cooking. The syrup may, however, if desired, be reboiled and strained. Then the whole is paddled to remove air bubbles and finally the mouth of the container is closed and sealed.

Over and above this, the bottles are to be processed, if safety from mould is to be insured. Processing against moulding consists in steeping the bottles after filling in a heated water bath, the time of dipping depending upon the kind of products packed. For

the purpose, water in a bath is heated from below and raised to the temperature of 180°F to 190°F, the temperature at which water simmers; maintain the temperature of water at this level. *Morabbas* processed at this temperature keep a better texture and flavour than those processed at a lower temperature. The usual duration of processing lasts from 15 to 30 minutes. It should be remembered that when jars with glass tops and screw caps or wire clamps are used, the pressure on the top of the caps is not withdrawn till the jars are entirely cold. The mouth should be sealed when the bottles are cold.

The bottles and corks should be invariably sterilised before packing. This is a great preventive measure even when complicated processes cannot be carried out. Always seal air-tight.

POINTS OF SUCCESS.

The points of success in the making of pickles, *chutneys* and *morabbas* to be always kept into view may now be condensed into following:

(1) Observe the strictest cleanliness from the very start. While peeling and coring the fruits, the hands must be well washed, otherwise the articles will be contaminated with dirt and dust which will necessarily deteriorate the keeping quality of the finished prepara-

tions. The object should be to prevent decomposition through the agency of injurious germs throughout the process. The trays, pans, utensils, knives, forks, etc., must be all bright and free from rust. The manufacture should be conducted in a neat and clean dress. Even the towels for rubbing hands must be clean. In short to help the preserving quality of the preparations, make these edibles free from all infections and contaminations. Extreme cleanliness should be observed in all matters however trifling they may be. While manufacturing on a large scale, for marketing, care should be taken not to admit workers with consumptive disease, skin diseases, etc., for the safety of public health. Greatest precaution is necessary as these are meant for human consumption.

(2) Success depends, as already remarked, on the freshness of the fruits and vegetables. But this is not all. These must be cut, pared, cored, dressed, treated and made into suitable preparations as soon as these are received without allowing them a minute to wait unnecessarily for subsequent treatments. The different processes should be hurried up according to the directions given in the recipes. This materially helps to keep the original flavour of the fruit and above all retards shrivelling of the surface due to unnecessary exposure to air.

(3) No metallic vessels for sunning, cooking and curing are to be employed in the course of preparations.

(4) Always cook *morabbas* over a slow fire made with wood fuel.

(5) Have the bottles and corks well sterilised before the preparations are finally packed. The mouth of the bottle is to be closed tightly to exclude air which conduces to the growth of fermentative bacteria.

(6) For purposes of marketing, have the preparations packed in bottles of proper size at once. It need not be mentioned that these should be wide-mouthed, as otherwise the fruits will not enter. Note that the pickles in each bottle are covered up with vinegar or mustard oil and *morabbas* with thick syrup. Seal the mouth with pitch. Always pack when cool.

CHAPTER XIII.

POSSIBILITIES AND MARKETING.

THE pickles, *chutneys* and *morabbas* are more or less prepared for home use and in pretty big quantities in India. But their possibilities as marketable articles in and outside India are so long overlooked. These are no doubt prepared for sale in certain provinces particularly Bengal, Upper India and Southern India, but the possibilities of expansion towards the establishment of home industries are not generally understood.

INDIAN AND FOREIGN DEMAND.

The business side of the proposition should meet the notice of all, especially as India is enormously rich in her ample resources of fruits and vegetables and the ingredients for treatment. Large quantities of fruits and vegetables go to waste in the season of their fructification as there are no means of utilising them. If these articles are preserved in the shape of pickles, *chutneys* and *morabbas* during such periods, the wealth of the country can be conserved and even increased by first putting a stop to the enormous imports of pickles, *chutneys*, and preserves and even the

canned fruits, and secondly by exporting the delicious preparations of the king of fruits such as mangoes, *papaws*, etc., which will be much appreciated by countries in the temperate and frigid zones.

Apart from this fact, the manufacturers by buying the fruits and vegetables in seasons of plenty at cheap rates and placing them in the market at attractive rates out of season can make reasonable profits and lay the foundation of a new industry fraught with immense possibilities of development.

HINTS ON MARKETING.

For marketing these preparations, the following points are to be noted:

- (1) Pack the preparations attractively in bottles, preferably in rows and layers to take up a minimum of space with decency in appearance.
- (2) An assortment of the whole fruits and vegetables is commendable. The big-sized products should be packed in a single bottle and must not be packed with small fruits as the former can then be put in the market at high prices as first class product and can at the same time establish a high standard and reputation for the make.
- (3) Attach attractive labels on the three sides of the bottle; the other may be left

exposed to show the preparations within. Designs of the fruits and vegetables may serve as suitable labels.

(4) Create a market for your goods by advertisements, circulars, canvassing and even by the distribution of samples, as have been done by other peoples in starting new industries.

(5) Above all the purity of standard and excellence of quality are to be maintained outright, the inferior products being sold out for immediate use.

GLOSSARY.

Abjosh—Raisins from haita grapes.

Ajowan—Jowan, juvani, ajamo, chochara, owa, amam, omami.

Allspice—Shahjeera.

Almond—Badam, vadam kottai.

Alubukhara—Plum, alucha, bhotiya badam, olchi.

Alum—Fatkiri, patakiri, shinacarum.

Amsatta—Dried mango pulp.

Aniseed—Mauri, muhuri, saurif, sewa, kuppi.

Apricot—Khubani, chuari, zardalu, pating.

Bainchi—Baichi, bilangra, kautai, kan-regu, vikarigota.

Blackberry—Kalajamun, kala-jam, na-gum, naeralu, nilaphala.

Black Pepper—Marich.

Borax—Sohaga, tinkal, velligaram.

Brinjal—Egg plant, baygun.

Cardamom Major—Bara elaich, elcho, bari ilachi, mote-veldode.

Cardamom Minor—Chhota elaich, illachi, velloda, chettu, elattari, pala.

Carrot—Gajar, shekhamulam, zardak, pita-kande.

Cassia Leaves—Tej patrak.

Chilli—Lanka, lal marich.

Coconut-shaped Plum—Narikel kul.

Coriander Leaves—Dhania sak.

Cow Pea—Suti barbati, chowli, urohi, chaunri, ghangra.

Cumin Seed, Black—Kala jira, fennel.

Cumin Seed, White—Jira.

Curd—Curdled milk, dahee, jugrat, mosru.

Currants—Big dried grapes, manacca.

Date—Khejur, sendhi, indu.

Dry Date—Khurma, pinda khejur.

Dry Ginger—Sunth.

Elephant's Foot—Ol, kunda, jangli-suran, karuna kalang, kanda-godda.

Embllic Myrobalan—Amlaki, amla, daula, gondhona, toppi.

Falsa—Shakri, tadachi, dhamana, phulsa, phutiki, phalna, pharsa.

Fenugreek—Methi, shamli, bhaji.

Gourd—Khaddu, kodu, lau, bopla, ran-bopla, sorai kay, bottle-gourd.

Hogplum—Amra, ambada, ambalamu.

Jack Fruit—Kanthal, panasa, palachu.

Jarda Alu—Apricot.

Jujube—Kul, baer, badari, bor, regu, elandai.

Kamranga—Khamrak, tamarta, tamarak.

Karamcha—Karanja, karamarda.

Karela—Momordica charantia, karena, karli, kurela, kakral.

Lemon—Libu, nebu, nimbu.

Lime—Jambira (Gora variety); also chunam.

Litchu—Litchi, lichi, kyet mauk.

Mango Ginger—Am ada.

Mint—Pudina.

Mustard—Sarisha, sarshaf, calorai, avalu, kadugu, mohori.

Mustard Rye—Rai sarisha, sarson.

Mutha—Cyperus rotundus, bathabajir, musta, dila, korai.

Myrobalan—Hariteki, pile-hara, imachi, hirada, himaja, pilo-harde.

Papaw—Pepe, papita, papaya.

Parsley—Randhuni.

Palwal—Patal, parvar.

Peach—Aru, takpo, rek, mandata.

Pear—Naspati, nak, kishta, tang, amrud, Emblic Myrobalan—Amlaki, amla, daula.

Pistachio—Pista.

Pomegranate—Dhalim, jaman, anar-kaper, madala, daru.

Pumpkin—Chal kumra, sanchi kumra, kuddoo.

Raisins—Kismis, dried grapes.

Rock Salt—Sandhub laban.

Rose Apple—Golab jamun, nati shambu.

Sarda—Sweet melon.

Satamuli—Asparagus, satavare, phillitaga, pani-yanaku.

Shaddock—Batabi lebu, bijora, papanus, sadaphal, bombalinus.

Sorrel—Chuka Palang.

Star Apple—Jamrul.

Sweet Potato—Ranga alu.

Turmeric—Halud, haldi, manjal, haridra, pasupu.

Turnip—Salgam, rapa, brassica campestris.

Vinegar—Sirka.

Vit Laban—Padelon, krishna lavana, kab nun, kalomith, foetid salt.

Whey—Ghol, chans, takra.

Wood Apple—Bael, Bengal quince, sriphal, bilvaphal, koovalam.

WEIGHTS AND MEASURES.

1 tollah = 180 grains.

1 seer = 16 chhataks = 80 tollahs = 2.057 lbs.

1 pound = 16 oz. = 7.778 chhataks.

60 drops (minims) = 1 fl. dram.
= $\frac{1}{8}$ fl. oz.

1 pint = 20 fl. oz.; 1 quart = 2 pints; 1 bottle = 24 fl. oz.; 1 gallon = 8 pints = 160 fl. oz.

INDUSTRY PUBLICATIONS.

(Continued from 2nd. Cover)

COTTON DYEING & PRINTING. (2nd. Ed.)	Re.	1.8
DENTAL PREPARATIONS ...	Re.	1.8
CHEMICAL INDUSTRIES OF INDIA ...	Re.	1.8
CLERK'S MANUAL. 3rd. Ed. ...	Re.	1
HOW TO DO BUSINESS, 2nd Enlarged Ed. ..	Re.	1
CAREERS FOR AGENTS AND MIDDLEMEN ..	Re.	1
THE RETAIL TRADE ...	Re.	1
TRADERS' MANUAL ...	Re.	1
SKETCHES OF INDIAN INDUSTRIES. Vol. I	Re.	1
SKETCHES OF INDIAN INDUSTRIES. Vol. II	Re.	1
WITTY SAYINGS (2nd. Edition) ...	As.	4
INSPIRING QUOTATIONS (2nd. Edition) ...	As.	4
PROVERBS (2nd. Edition) ...	As.	4
RIDDLES WITH SOLUTIONS (2nd. Ed.) ...	As.	4
GREAT THOUGHTS (2nd. Edition) ...	As.	4
GREAT WORDS (3rd. Edition) ...	As.	4
TRADE TERMS & ABBREVIATIONS ...	As.	4
HEARTY LAUGHS (2nd Edition) ...	As.	4
SCIENTIFIC BITS ...	As.	4
FACTS THAT INTEREST (2nd Ed.) ...	As.	4
HOUSEHOLD HINTS (2nd. Edition) ...	As.	4
GARDENING BITS ...	As.	4
A DICTIONARY OF SYNONYMS ...	As.	4
DIRECTORY OF INDIAN INDUSTRIES ...	As.	4
POULTRY FARMING ...	As.	4
USEFUL PHRASES ...	As.	4
COMMON FAULTS AND ERRORS ...	As.	4
INVENTIONS OF TO-DAY ...	As.	4
CATTLE BREEDING AND DAIRYING ...	As.	4
INDIA'S FOOD PROBLEM ...	As.	4
GUIDE TO FIRST AID ...	As.	4
HAND SPINNING & WEAVING ...	As.	4
DOMESTIC RECIPES ...	As.	4
START A BUSINESS ...	As.	4
VEGETABLE AND FRUIT CULTURE ...	As.	4
MANURES AND THEIR APPLICATION ...	As.	4
GUIDE TO DYEING AND CLEANING ...	As.	4
GLOSSARY OF INDIAN PRODUCE TERMS ...	As.	4
GLOSSARY OF MANUFACTURED GOODS AND TRADE TERMS. ...	As.	4
INSURANCE GLEANINGS ...	As.	4
RURAL INDUSTRIES ...	As.	4

INDUSTRY BOOK DEPT.

KESHUB BHABAN, SHAMBАЗAR, CALCUTTA.

